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SCIENCE AND PUBLIC HEALTH *

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IT IS WELL to remind ourselves from time to time how much we owe to men of science. We hasten to honor, and rightly so, him who first flew across the sea, but how few remember the head of the Smithsonian Institution, whose experiments made aviation possible, experiments which, for years, were the laughing stock of Congress. We are thrilled to talk with London and Paris by radio, but who knows of the patient work of Professor Hertz, who first discovered the electric waves of the air. To-day we enjoy freedom from most of the great plagues of the world, but we have little thought of the thousands whose scientific labors, accompanied perhaps by exposure to deadly germs, have conquered disease and saved countless human lives.

The life of this Association has run parallel with so much of the advance of preventive medicine that perhaps there is no better way of showing that progress than by comparing the state of our art at the time of our first scientific meeting and now. The papers presented in Cincinnati in 1873 were by very able men: Stephen Smith, M.D., our first President; Francis A. Walker, director of two censuses and later President of the Massachusetts Institute of Technology; F. A. P. Barnard, LL.D., President of Columbia; Hon. Andrew D. White, President of Cornell; Austin Flint, M.D., the distinguished clinician of New York, and many others who became eminent in state and municipal health work. Moreover, there was a paper from Max von Pettenkofer, M.D., of Munich, Europe's leading sanitarian.

Many of the speakers were trained in scientific method. It was not their fault that few reliable procedures were here formulated for the control of disease. The fundamental discoveries of Pasteur, which opened up modern methods of disease control, had not been made. Dr. Barnard of Columbia, in a careful paper, weighed the evidence for and against the germ theory, and left his audience in doubt whether the infectious diseases are due to chemical substances, or to living germs.

During 1873, the Mississippi Valley had suffered severely from cholera and about one-third of the papers read at our first annual meeting dealt with this subject, but there was no agreement as to whether the disease arose *de novo*, or was imported, whether it was water borne or air borne, or, indeed, whether it was contagious at all. As always in those days, our people had great terror of yellow fever, and there were five papers on that subject, but all they did was to expose the lack of knowledge of the day.

Maritime quarantine was shown to be

* Presidential Address delivered before the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 17, 1927.

ineffective, and very burdensome. Although disinfection was regarded as an almost sacred rite, its practice was based on fancies as thin as air, and it accomplished little. The one writer on this subject, not knowing whether the causes of disease are gases or germs, was obliged to test his disinfectants on odors, which never killed anyone.

It was becoming recognized abroad that water may be a dangerous vehicle of infection, but so little was known about the facts that the subject received scant recognition. C. F. Chandler, Ph.D., M.D., LL.D., at that time President of the New York Board of Health, and later a leading water analyst, read a paper in which he admitted that there was the most complete ignorance as to the nature of the dangerous substances in water.

LACK OF DEFINITE KNOWLEDGE

With no solution for the most pressing problems, as shown by the papers, with no real knowledge of the nature of infection, or its mode of transference, with no diagnostic laboratory, with no rational system of quarantine or of isolation, with no suspicion of carriers, with no means of purifying water or milk, with no hope of exterminating cholera, yellow fever, diphtheria, or typhoid fever, with no thought of serum treatment or of immunization (except for smallpox), or of campaigns to save the babies, or to help the tuberculous, with no knowledge of hookworms, one can scarcely blame our pioneers of 1873, and their immediate successors, because their enthusiasm was not sustained.

The scientific output and practical value of our meetings declined, or at best remained stationary, for many years. As I look back, it seems to me that, long after I joined the Association in 1886 (there are only four other present members who were then with us) our discussions related chiefly to our defective quarantine, which we knew not how to improve, to sewer gas, to plumbing, to the transportation of deceased persons by common carriers, to the disposal of the dead, to the location of cemeteries, to street cleaning, to fumigation, and to garbage disposal. I must plead guilty to doing my part to maintain this mediocrity by reading papers on the last two topics. There were, of course, not a few brilliant papers during these years, but the real revival came later.

PATHS WHICH LED NOWHERE

Many times those who practiced the art of sanitation have followed devious paths and false trails which led nowhere, simply because science at the period could offer no true leadership. Faced with pestilence, the people demanded protection, and the profession of medicine and the profession of sanitation, followed any will-o'-the-wisp, believing it better than no light at all. Sometimes the false guides were men with a scientific mind, but who ventured far from their chosen field, and, like fish out of water, came to disaster. A conspicuous example was Noah Webster. As a maker of dictionaries he was without a rival, and for over a century successfully controlled the spelling and pronunciation of American youth; but he chose to write a book on epidemic diseases. The theories contained therein did more than anything else to lead educated Americans, including the medical profession, to a belief that most of these scourges have their origin in filth and decay.

Another who set up a false beacon was George E. Waring, a distinguished engineer of my own state, Rhode Island. He did much by precept and example to develop agricultural drainage, and later on sewerage and house drainage, and was the first man to clean the streets of New York; but he too ventured into the domain of medicine and taught the dangers of sewer gas until our good people of New England feared it perhaps more than they did the Evil One.

THE GERM THEORY OF DISEASE

Although the germ theory of disease was accepted by many, like most theories, it was barren of results, and indeed, during the 70's and 80's of the last century it ran riot and led to the most fantastic notions and practices. Thus the state health department of Rhode Island, in 1878, taught that germs of disease, lightly separating from the body, might be wafted over the whole country side carrying sickness and death.

We all rightly revere Louis Pasteur as the father of preventive medicine. Beginning his career as a student of abstruse chemical problems, turning then to help the wine makers with their fermentation, he next gave his attention to the diseases of silk-worms and saved the silk industry for France. In 1877, he was the first to demonstrate beyond all criticism that bacteria really do cause disease in human beings. He substituted fact for theory. All the wonderful discoveries of the nature of the infectious diseases have been wrought with infinite labor, and they have all followed naturally from the epoch making work of Pasteur. Though rightly honoring him as the master, we must not forget that the great result, like nearly everything in science, depends in a measure on the achievements of many workers. The perfection of the microscope, the discovery that there are such things as germs, the observation of their close association with disease, were important preparatory steps.

The question of the relation of germs to disease is closely bound up with that of the spontaneous generation of life. If the germs of cholera, diphtheria, typhoid fever and other diseases can develop spontaneously from non-living matter, as was thought possible at our first Cincinnati meeting, then the problem of disease control is completely and almost hopelessly changed. Pasteur had to face this question, and in its solution he was aided by many able men and by none more convincingly than by Tyndall. The filth theory of disease and the theory of spontaneous generation of life fell at the same time. It is proof of their surpassing scientific genius that of these two men who revolutionized medicine Pasteur was a chemist and Tyndall a physicist.

A tremendous impetus was given to the study of germs by the brilliant and painstaking ingenuity of Robert Koch, in Germany. He so simplified the technic of bacteriology that great numbers of able young men soon took up this study.

TRANSMISSION OF DISEASE BY INSECTS

Another epoch making advance in preventive medicine was the recognition that infectious disease may be transmitted by insects. There had long been suspicion of this, especially among Americans, but the first demonstration was by Theobold Smith. In the early years of the Association, much attention was given to the contagious diseases of animals. Texas cattle fever was then counted one of the most serious, though it was argued in our meetings that it was not contagious, and, indeed, that there was no such disease in Texas. The U. S. Department of Agriculture, in 1888, began the study of this disease, a study which was effectively carried to completion by Dr. Theobold Smith in 1892, by demonstrating that it is caused by a form of parasite or germ not hitherto known to produce disease, and that it is transferred from animal to animal in a most remarkable and circuitous manner by means of a species of tick infesting the cattle. Since then, many diseases of humans as well as of animals have been shown to be transmitted by insects. The most brilliant of these discoveries was that of the relation of the mosquito to yellow fever, the most baffling of diseases, which was made by our Army Commission in 1899.

CONTACT INFECTION

A discovery which has profoundly altered methods of control of disease was that our common contagious diseases are spread chiefly by the direct transfer of excretions from person to person. In

1873, everybody thought that infection was due to gaseous miasm, or perhaps to germs floating in the air. In 1892, Professor W. T. Sedgwick, one of our former presidents, showed that most of the contagious diseases with which we health officers have to deal hereabouts, are caused by the quite direct transfer of excretions from person to person. It is largely a hand to mouth affair. Instead of a futile effort to stop the floating germs by a wet sheet hung before the door of the sick room, we have substituted washing the hands of attendants.

At about the same time, bacteriology was revolutionizing our isolation and our quarantine. No one had previously even imagined that perfectly healthy persons, carrying virulent germs, could be a serious source of danger. For centuries men had needlessly feared *things* as the bearers of disease. By countless careful experiments and observations, it was learned that this fear is ungrounded, and that infection is to be sought, not in things, but in living beings. The healthy "carrier" of disease germs explained much and gave rise to many new problems.

BACTERIOLOGY A GUIDE FOR HEALTH WORK

In a way, it is rather surprising that American public health officials did not sooner feel the influence of these far-reaching discoveries. Though bacteriology was introduced into some of our universities in 1877, and though Prudden in 1885 urged the establishment of a bacteriological laboratory by the Connecticut State Board of Health, it was not until 1893 that a diagnostic laboratory was set up by a health department in any state or city in this country. The appointment, in 1872, of Hermann M. Biggs, M.D., as Director of Bacteriological Laboratories of the Department of Health of New York City was, perhaps, the most important step in modernizing public health practice in the United States. Thereafter, bacteriology became the guide to health work in New York, and gradually in all the states and cities of the land. A host of enthusiastic men appeared, trained in the exacting science of bacteriology. They flocked to this Association, and formed the Laboratory Section in 1899. The effective work of the Association had a vigorous revival. The rapid progress of preventive medicine was mirrored in our meetings.

CHOLERA

The proof of the pudding is in the eating. The new science was being justified by results. In 1873, this Association was all at sea as to cholera. In 1880, Koch discovered the germ. He and others, by years of patient labor, learned its habits. The public, however, did not know, and many health officers had only an inkling. When cholera came to New York in 1892, the country was in a panic and the city in an uproar. The officials, adopting sane and humane methods of control, were attacked by infuriated mobs. By 1911 the people had learned much. Cholera was again brought to New York. There was not a ripple of excitement. The disease was kept at bay, and the interference with commerce was negligible.

YELLOW FEVER

In 1873, yellow fever was the most dreaded of all diseases. Nothing was known about it. In 1878, several American cities were devastated. In Memphis, with 45,000 people, 30,000 fled the town and, of the 15,000 remaining, 7,000 were attacked and 3,000 died. The city was ruined financially, and lost its charter. When Havana was captured, we knew little more. Everybody thought this fever a filth disease. Colonel Waring came from New York to clean the city. He made it a spotless town, but, alas, the disease was worse than ever. Then the government turned to science and within a year the labors of Finlay, Carter, Agramonte, Lazear, Carroll and Reed solved the mystery. The fight turned from man, ships and filth to the mosquito. The battle was won. Yellow fever is almost extinct.

DIPHTHERIA

Although the germ of diphtheria was discovered in 1883, it was nearly fifteen years before much benefit accrued to mankind, so leisurely sometimes is the progress of science. First the use of cultures secured the early recognition of the disease. Then it was found that well persons could carry and spread the germs. Wearisome studies of the relation of the blood to germs led to the great discovery of antitoxin by von Behring, in the early 90's. Meanwhile, O'Dwyer, of New York, had invented intubation which did much to save those cases where the breathing was obstructed. Antitoxin, however, helped all cases by neutralizing the poison. Before its discovery, the fatality of diphtheria was perhaps 50 per cent. If antitoxin is given on the first day, not more than 1 per cent die. Then, through much study by von Behring, Theobold Smith, Schick and especially by Park, another of our Presidents, came the development of toxin-antitoxin immunity. This has already accomplished great things, and raises high hopes for the future.

TYPHOID AND TYPHUS FEVERS

In 1880, Eberth, a German, discovered the germ which causes typhoid fever. Much was learned about how it is disseminated in the water, in milk and in other foods, and how this can be prevented. It was a great help to know that it is not carried by the air, an idea which caused much needless fear and much costly and ineffective effort. It was not until 1896, that Widal, an Algerian physician, devised an easy method of making a diagnosis, so that many cases, formerly missed, are now recognized. The importance of carriers in this disease was learned. Finally, as a result of a vast amount of difficult scientific labor in many lands, but especially by Sir Almoth Wright of England, an extremely valuable method of immunization was developed. In my own city typhoid fever caused a mortality rate of 149 in 1865. Last year it was less than 1. During the Civil War, of each 100,000 men in our army, 1961 died of typhoid fever; in the Spanish War, 967; and in the World War only 5. Typhoid fever is well called a vanishing disease.

In Bellevue Hospital is a marble tablet on which are inscribed the names of 14 of 21 internes who contracted typhus fever while caring for patients with the disease in 1863-64. Six of these internes died. No wonder we, who daily saw that tablet while serving in the hospital, had a lively fear of the contagiousness of this disease. Until Dr. Gerhard, of Philadelphia, in 1839, showed that typhoid fever and typhus fever are totally different diseases, they were believed to be merely different strains, though it was recognized that typhus, unlike typhoid, is spread by close contact. Ordinary isolation, however, was of little avail. Why, we did not know until it was discovered, in 1909 by Nicolle, a French army medical man in Tunis, that typhus fever is spread exclusively through the bites of lice. When a man with typhus fever came to Providence in 1893, I felt that I was taking my life in my hands when examining the patient, as, indeed, I was. In 1914, when several cases were taken from a ship to our City Hospital, they were cared for in a ward with many other patients without the slightest danger. Nicolle had taught us to look out for the lice. Even in war and in post-war chaos, typhus fever can be controlled, though it is costly.

MALARIA

Even the ancient Greeks knew that malaria was connected with marshes. This knowledge was of considerable help in the prevention of the disease, but the known facts were so limited that very little was accomplished previous to the discoveries of the past fifty years. Laveran, a French medical officer in Algiers, in 1880, discovered the germs of malaria, which, by the way, are entirely different creatures from bacteria. The way was now open to recognize the disease with accuracy, to test methods of

treatment and to determine when the patient is free from infection. What was most important, the discovery tremendously faciliated the study of the exact relation of malaria to wet places. Again we have an instance of the interdependence of scientific studies. Many men had some part—Laveran in Algiers, Grassi in Italy, Manson, an Englishman, and especially Sir Ronald Ross, an army surgeon in India, as well as many others, contributed something; but to Ross belongs by far the greatest honor for the demonstration that certain kinds of mosquitoes are the bearers of the malarial germs from man to man.

BAD AIR

Let us now leave the germs for a while From the time of Hipprocrates, people have feared bad air. As late as 1908, I said, with truth, we did not know what made bad air bad, or, indeed, whether bad air really is bad. A multitude of studies have since proved, as has been so well set forth by the Commission on Ventilation, headed by my immediate predecessor in this chair, that bad air is bad, not because of the poisons it contains, but because it is too hot or too cold, too damp or too dry, or has too little or too much motion. No wonder that brilliant success did not crown our earlier efforts at ventilation, but that vast sums were wasted to no purpose.

The belief in the evil nature of sewer air has been referred to. Because the plumbing was found to be defective in a house where typhoid fever occurred, it was assumed that sewer air did it. Few dared question the theory. Finally Winslow showed that one may breathe the air from a soil-pipe all day without danger of contracting typhoid fever.

STUDIES OF FOOD

Food is as essential to life and health as is air. From time immemorial, impure food has been feared, impure milk more than anything else, but when and why it was dangerous was only a guess. After germs were discovered, we made another guess, that it was the germs in milk which do the harm. Park was the first to make use of exact methods in testing this. He studied the babies in the City of New York and found that those fed on milk with many germs died in greater numbers than those fed on milk with few germs. This was the beginning of a long series of difficult studies, in which Park had an important share, which have made wholesome milk available for a large portion of our babies and which have been an important factor in saving countless infant lives.

Modern science has given us wonderfully useful knowledge of the nutritive value of foods. The chemists of the 19th century showed us the amount of heat and energy to be obtained from the different kinds of food, how to combine them wholesomely, and how to choose them economically. They taught us the significance of the calory, knowledge so popularized by the World War. Then, during this century, came the discovery of the importance of vitamins, those almost infinitesimal elements of our food which ward off disease and direct growth. This has rendered the selection of the best diet for ourselves and our children far easier than before, but perhaps the greatest benefit has been to teach the importance of the minute. This idea has already borne fruit in our discovery of the relation of iodine to goiter and of lime to rickets.

BACTERIOLOGY A DISCIPLINE

Great as are these gifts to medicine, and especially to preventive medicine, I sometimes think that the gift of the scientific method and the scientific spirit is greater still. Pasteur and Koch were outstanding men of science. The rules which they laid down for their hosts of students were rigorous. There could be no guess work. They must test and try and test again. Bacteriology has always seemed to me a splendid scientific discipline.

You know what the bacteriologist means by a "control pig." When Koch was trying to learn whether the germs we now call tuberculosis germs were the cause of the disease, he injected some of them into a number of guinea pigs. Even if the guinea pigs developed tuberculosis in a few weeks, he could not be sure that it was the germs which caused it. It might be the material in which the germs were growing, or it might be something in the air where he kept the pigs, or in their food or drink. Therefore, he took an equal number of guinea pigs out of the same lot, injected them with some of the culture medium, but in which there were no germs, put them in similar cages, fed them with the same foods, kept them in the same room, and had the same person tend them. The pigs with the germs developed tuberculosis, the control pigs did not. The application of the principle of the "control pig" is now recognized as essential, not only in preventive medicine, but in bedside medicine as well. It is now the habit of students of medicine not to guess, but to test and observe and test again.

SCIENCE IS PROGRESSIVE

Science can never be a closed book. It is like a tree, ever growing, ever reaching new heights. Occasionally the lower branches, no longer giving nourishment to the tree, slough off. We should not be ashamed to change our methods, rather we should be ashamed never to do so. We should try new things, but should show common sense about it. The science which can point to its achievements against smallpox, malaria, yellow fever, diphtheria, typhoid and typhus fevers, tuberculosis and a score of other diseases, as well as to a rapid lengthening of human life, and especially to the saving of vast numbers of infants from early death, need not be ashamed to acknowledge that some experiments have failed; neither should it hesitate to admit that we are still merely picking up pebbles on the shore of the sea of knowledge, and that what is not known about maintaining and perfecting the health of mankind is far greater than what is known. The opportunities for discovery are as great as before the days of Harvey, Pasteur and Lister.

DISCOVERIES WHILE PURSUING DAILY DUTIES

We are apt to think of science as concerned only with the microscope, the test tube and the chemical balance. It is my urgent desire to impress upon both laymen and professional health workers that some of the most valuable truths of sanitary science have been discovered in the field, at the bedside, or at the desk of the statistician. Great as are the contributions of the laboratory, they must all be checked by observations on human beings. There is the greatest need for scientific investigation by health officers and field workers. Such studies have borne splendid fruit in the past and will do so in the future.

It was by his study of his patients, rather than by chemical tests, that Sir George Baker, in the 18th century, showed that "Devonshire colic" was the result of lead poisoning, due to the custom in that part of England of keeping cider in lead lined vessels.

Beriberi is a very serious disease of the tropics affecting the nervous system. According to Sellards, the nature of the disease was discovered in the following way. In 1890 Dr. Eijkman, a Dutch physician in Java, was studying another disease and was using chickens for his experiments. The chickens died so fast with paralysis that he feared he would have to stop his work. Suddenly, they began to get better; but after a time the same disease attacked them again. Eijkman gave money to the boy who took care of the chickens to buy cheap unpolished rice for them, but the boy kept the money and begged nice white rice from the hospital steward. It was then that the chickens died. The steward was away for a time and the boy had to buy unpolished rice. Then the chickens recovered. The chicken disease reminded

Eijkman of beriberi and he tried feeding unpolished rice to beriberi patients. They too recovered. The polishing of rice seemed to remove something, the lack of which caused beriberi in persons whose diet consisted chiefly of polished rice. This disease is now largely controlled, but best of all, Funk, while trying to learn the nature of this substance, laid the foundation for the study of vitamins.

Austin Flint, with no knowledge of germs, showed that typhoid fever is spread by drinking water. At about the same time, Dr. John Snow of London, traced cholera to the celebrated Broad Street Well. These observations have been of inestimable value to preventive medicine.

It was not in the laboratory, but while going through the tenements of a New England mill village during the course of a typhoid fever outbreak, that Sedgwick observed the transfer of fresh excretions from child to child, and recognized the importance of contact infection, a conception which has revolutionized our methods of handling contagious diseases.

It was Finlay's observations on the surroundings of his yellow fever patients in Cuba which led to his suspicion that a certain species of mosquito transmits this disease. While at work for the government trying to stamp out yellow fever in the South, Henry Carter observed that after this disease is brought to a place, a certain number of days must elapse before it begins to spread. These two facts, brought to the attention of our army officers, soon led to the complete solution of the problem and control of the disease

HEALTH WORKERS SHOULD ADVANCE SCIENCE

It is impossible to know along what path an epoch making discovery will be made. The men just referred to were not expecting to achieve great things. While pursuing their daily duties, they observed and thought. A distinguished professor of vital statistics has recently said "Thinking is apparently a painful process." So is walking, to the bedridden patient, but persisted in, becomes a pleasure. We ordinary health officers and other field workers cannot expect to set the river on fire, as the saying is, but if we observe and think, we may reasonably hope to learn some new fact about preventive medicine. There are many great buildings composed of small stones, but which have endured for centuries.

Problems stare us in the face daily. How often do diphtheria carriers cause disease? How long is a scarlet fever patient infectious, or one of chicken pox? How often do well children in an infected family carry scarlet fever to school? Does the mild type of smallpox ever become virulent? Much could be learned about immunity by keeping careful records of the number taken sick in comparable groups of protected and unprotected persons. The field workers must answer these questions, not the laboratory.

How often must a child eat spinach in order to be healthy? Is spinach the best green vegetable? Does the oxalic acid in spinach do any harm, as has recently been suggested by Safford? Here is a chance for the nutrition workers.

Why do the poor die young? We perhaps even need more facts to show that they really do, and to learn what diseases take the chief toll. You and I, who see the poor in their homes, should observe and think. Perhaps we may find some one of the doubtless many causes which are a handicap to the health of those who also have little wealth.

We have received a great heritage of knowledge from those who have gone before, both from the masters and from those who have been called the "hod carriers of science." Most of us must perforce belong to the latter class, but let us carry our hod well and try to place at least one stone on the ever growing edifice of science.

COÖRDINATION OF OFFICIAL AND VOLUNTEER HEALTH AGENCIES IN KNOXVILLE, TENNESSEE *

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THE overwhelming desire for self preservation on the part of enlightened peoples has resulted in the inauguration of governmental health activities in 46 states, 301 counties,[1] and 333 cities [2] in this country, as well as in the organization of a long list of voluntary health agencies supported by private philanthropy. In almost every instance the creation of these volunteer groups is motivated by the highest ideals; locally the realization of the disadvantage resulting from the lack of governmental health activity has provoked concerted effort to demonstrate what can be accomplished in community hygiene.

The aim is often to induce the municipality or the county, as the case may be, to undertake health activities at public expense, as soon as their worth has been thoroughly verified. When local officials are enlightened and undertake to carry on such a program, or have been importuned into so doing, there frequently results somewhat of a lack of understanding as to which duties can be justly claimed by the officially established agency and which belong to the parent, or private organization. The offspring being clothed with considerable authority from the state, is not very anxious to be subordinate to the parent; neither is the paternal instinct of the voluntary group made happy when its child slips from under its disciplinary influence. Bearing this in mind, it is not difficult for the public health worker of to-day to understand the development of some amount of discord, misunderstanding, and even clashes, between official and voluntary health agencies in almost every section of the country.

Welch[3] believes that under all circumstances priority belongs to the governmental agency, and that the unofficial groups should coöperate in every particular. Also, he is of the opinion that the private organizations, operating within the jurisdiction of official health departments, should always lay their plans in detail before the head of the official department, and receive his or her approval before undertaking to carry out such a program. Further, he believes that these agencies should have a mutual understanding in all matters pertaining to public health activities where the volunteer groups are involved.

RELATION OF OFFICIAL AND PRIVATE AGENCIES

In an endeavor to secure group opinion as to the correct relation between official and private health agencies, inquiry has been made of 114 state and municipal health departments. The following questions were propounded:

1. What private health agencies operate in the territory over which you have jurisdiction?

2. Do you feel that any of these agencies have contributed very greatly to public health endeavors? (a) If so, which agencies?

3. Have there been any special efforts made to coördinate the activities of any of these

* Read at the Joint Session of Health Officers' and Public Health Nursing Sections of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 21, 1927.

agencies with governmental activities, and placing them under official control? (a) If so, which agencies? (b) And with what success?

4. Do you believe that such coördination is desirable? (a) Do you believe that such coördination is possible?

Unanimity of opinion was not expected nor received. Seventy-one per cent responded to this inquiry.

REPLIES TO QUESTIONNAIRES

In answer to question 1, more than 784 agencies were mentioned. The Visiting Nurses Association was specifically named 27 times out of the 81; Tuberculosis Association 54 times; Parent-Teachers Association 7 times; the Red Cross 20 times; and Child Welfare Association 39 times.

In answer to question 2, 57, or 60 per cent, of the answers were in the affirmative; 6 in the negative; 5 expressed doubt; 3 answered "Yes," with a qualifying statement; 1 answered "No," with a qualifying statement; and 9 failed to answer the question.

In response to question 2 (a), 37 stated that all agencies in the territory had contributed greatly to public health. In this particular, the Tuberculosis Association was mentioned 13 times; the Visiting Nurses Association 10 times; the Red Cross twice; the Prudential Life Insurance Company once; the Clinic for Crippled Children once; out-patient departments of hospitals once; State Charities twice; Medical Inspection of School Children once; 4 answers did not specify the agencies; 9 answered that none of the agencies had made any contribution to the cause of public health; and 9 were noncommittal.

Answering question 3, 27 stated that effort to coördinate under official control had been made; 28 answered in the negative; 5 stated that an endeavor in the matter of coöperation only had been undertaken; 2 "coördination only"; 11 "coördination, but not official control"; while 8 failed to answer this question.

In question 3 (a), specifically mentioned among the volunteer agencies, where an effort towards coördination had been made, were Tuberculosis Associations 9; District Nursing Associations 4; all public health 7; local Red Cross 3; "certain agencies" 5; "all" 8; "none" 24; and not answering this question 18. In addition, certain local agencies were referred to, such as Babies' Milk Fund, State Charities Aid, Child Hygiene, Child Welfare, etc.

Answering question 3 (b), as to the result of this coördination, 22 reported satisfactory results; 26 reported unsatisfactory results; 5 indicated the accomplishment of some desired results; 8 were very indefinite; and 20 failed to reply.

Regarding question 4, 49 indicated that such coördination was desirable; 15 answered "No"; 3 answers were indefinite; and 8 did not answer. Concerning the possibility of such coördination there were 37: 4 answered "yes"; 15 answered "no"; 15 were indefinite in their reply; and 14 failed to reply.

From many notations as well as letters pertaining to this matter, the overwhelming opinion seems to be in favor of a close coördination of official and volunteer health agency activities, with power to extend some type of supervision by the legally constituted health department.

SITUATION IN KNOXVILLE

In January, 1926, a serious situation existed in Knoxville, Tenn., a city of 100,000 population. Established almost six years previously was the Knoxville Health Center, promoted very largely by the local chapter of the American Red Cross, which for this purpose organized what was known as the Knoxville Health and Welfare Association. This organization secured through the generosity of the late J. Allen Smith, one of its most benevolent citizens, a magnificent piece of property in the downtown section, which furnished splendid facilities for a health center. The city health officer at that time, and the physicians of the community, together with this group of lay

workers, established a series of general treatment clinics, which expanded from year to year, and became a most potent factor for the relief of illness among the indigent. Largely as the result of this activity the city hospital opened a very good general out-patient department. Many of the physicians on the staff of the health center, being also on the staff of the General Hospital, preferred to render free service at only one place, and chose to serve the General Hospital. This, and other reasons (which need not here be mentioned) finally caused the physicians of the community to cease coöperating with the clinics of the health center. Realizing what a loss this was to the community, several public spirited citizens of the community asked through the Community Chest, the Committee on Administrative Practice of the American Public Health Association to study their further course of action.

In July, 1926, Dr. C. St. Clair Drake, Associate Field Director of this committee, was detailed to Knoxville. Dr. Drake spent six weeks in the community endeavoring to bring about harmonious thought and action between the groups that had heretofore contributed to community health. The recommendations which he offered, after six weeks' careful study of the situation, were as follows:

SUMMARY OF RECOMMENDATIONS

1. Set up an organization for the coördination and harmonizing of all local health service, including a medical advisory board and a citizens' health council as important factors in such an organization. This should be the first step, and it should be taken whether the health center is organized or not.

2. Reorganize the health center, placing it under the management and direction of the City Health Officer. House all city and county health agencies there, including the City Bureau of Health, the County Health Unit, and all other official and unofficial agencies. Confine clinics at the health center to those of a public health or control character; operate them under medical supervision and enforce regulations for the prevention of abuse of medical charities. With the health center organized and operated on this basis the efficiency of local health service will be increased many fold.

3. Transfer the office of the Registrar of Births and Deaths to the health center and place it in the Bureau of Health.

4. Consolidate the state and city laboratories.

5. Transfer the City Physician's office from the Bureau of Health to the General Hospital. This service will be more appropriately placed at the hospital, in contact with the out-patient department.

6. Transfer the County Health Unit to a location in the health center. Contact and coöperate relations between city and county health services will be of material advantage to both.

7. Transfer supervision and direction of school medical examination to the Bureau of Health. Physical examinations of school children should be conducted with greater thoroughness.

8. Provide hospital facilities for the care of all communicable diseases. At least 25 per cent of the cases of diphtheria and scarlet fever, and 40 per cent of the typhoid cases should be hospitalized. There are no provisions for the hospitalization of diphtheria or scarlet fever at the present time.

9. Tuberculosis control work is greatly in need of expansion. Organize a tuberculosis clinic at the health center and take steps to encourage proper attendance. More nursing attention to anti-tuberculosis work is required. It is very important that hospital care for tuberculous colored people be provided.

10. Increase the generalized nursing staff so as to permit increased attention to the important work of conserving child health, to more home care for tuberculous subjects and follow-up of post-sanatorium cases, to better follow-up of physically defective school children, and to more attention to care of communicable disease cases in the home.

11. Provide clinical care for indigent county cases at the General Hospital clinics. Arrangements should be made with the county authorities to defray the expense of this service.

12. A resident physician should be installed at Beverly Hills Sanatorium; also, surgical facilities should be provided for the inmates of this institution.

13. A vigorous campaign should be instituted for the immunization of children against diphtheria. This important work has not been carried on to the extent it should be. A loss of

28 points in the city's health protection rating resulted from this shortcoming in service.

14. A much larger proportion of the city's milk supply should be pasteurized. At the present time only 25 per cent is pasteurized; to secure a full rating on sanitary milk control, 100 per cent must be pasteurized. Also, there is an indicated need for a closer check on the efficiency of pasteurization and the subsequent handling of the pasteurized supply.

15. For the better control of venereal diseases, two enforcement officers should be attached to the Bureau of Health. Their duties will be to run down delinquent infectious cases and return them to treatment. The proportion of delinquent cases is excessively large at the present time.

16. According to the records, Knoxville has a venereal disease problem of great magnitude. A survey of local conditions appears to be desirable.

17. More sewers should be built. The city's sewerage system is grossly deficient. Only 55 per cent of the dwellings are sewer connected and there are some 8,000 privies in the city. On account of this deficiency, the city scored zero on sanitary sewer facilities.

18. A study of negro health conditions is desirable and should prove profitable. This may be undertaken by the Citizens' Health Council through a committee on inter-racial health problems.

19. A study of the city's economic conditions, preliminary to a conference to determine proper standards for admission to free public clinics, is desirable. This also may be undertaken by the Citizens' Health Council.

20. A conference should be held at an early date to determine proper standards for admission to free public clinics, methods of enforcement, etc.

As nearly as has been found practicable the recommendations of the American Public Health Association, through Dr. C. St. Clair Drake, have been put into effect as follows:

1. The Citizens' Health Council, consisting of 27 outstanding people, and the Medical Advisory Board, represented by 4 of the leading physicians and 1 prominent dentist, have been organized.

2. The reorganization of the health center and the coördination of the health activities of the city, both of the official Bureau of Health and the unofficial health center, have been accomplished.

3. As yet the office of the Registrar of Vital Statistics has not been transferred to the health center building, but very close coöperation exists between the Bureau of Health and this office.

4. The State Branch and City Laboratories have been consolidated.

5. The office of the city physician has been transferred to the out-patient department of the Knoxville General Hospital, and the budget for its maintenance has been taken over by the Director of Public Welfare.

6. The county is still without efficient whole-time health service, the county court refusing from time to time to make the necessary financial provision.

7. The Medical School Inspection Service is still maintained and controlled by the Board of Education.

8. Plans for the erection of a unit to the Knoxville General Hospital for the care of communicable diseases have been drawn and the contract awarded.

9. The anti-tuberculosis program of the city has been given tremendous momentum by the opening of the tuberculosis clinic. During the 12-month period, September 1, 1926, through August 31, 1927, 872 patients were admitted to this clinic. Funds are available, and plans practically completed for the erection of an infirmary at Beverly Hills (City-County Tuberculosis Hospital) for the care of the colored.

10. The generalized nursing service has increased 50 per cent during the past 12 months. The staff now consists of 1 director, 1 supervisor, 3 clerical assistants, and 19 district nurses. The nursing service is, therefore, able to care more adequately for all types of tuberculous, as well as other cases.

11. No provision has been made for the hospitalization of the indigent sick of the county, except where actual emergencies exist.

12. A resident physician has been provided for at Beverly Hills Sanatorium.

13. A vigorous educational campaign for the immunization of children against diphtheria was conducted in the early spring of 1927. From 2,500 to 3,000 completed treatments were administered, the city furnishing the toxin-antitoxin free of charge to the physicians of the community, who made a nominal charge only where the parents or guardians were financially able to pay.

14. At present approximately 50 per cent of the city's milk supply is being pasteurized. This has been accomplished through educational, rather than through compulsory measures.

15 & 16. Two enforcement officers, 1 male and 1 female, have been attached to the venereal disease clinic. A more careful study of the local conditions responsible for the excessive infection rate is being instituted.

17. Several small areas have been sewered during the past year.

18. Nothing, definitely, has been done looking toward the determination of the excessively high colored death rate in Knoxville; such a movement is anticipated.

19 & 20. No study to determine the influence of economic conditions as a means of establishing standards upon which to base free clinic services has been made.

In addition to this, it might be mentioned that during the first year of the operation of the health center, as outlined by Dr. Drake, the dental clinic for school children has been a very important factor in the promotion of oral hygiene. Also, the psychiatric clinic has rendered valuable service to the juvenile court, the Knox County Industrial School, the public school system, and to the community in general. These two clinics handled 836 and 300 patients respectively.

SUMMARY

1. Private health agencies have played a very important rôle in the development of individual and community interest in public health, very often leading to the establishment of official health departments.

2. With the two groups of agencies in the field, one without official power and financial support, and the other a part of the government itself, we are offered an additional problem in the matter of coördination of effort.

3. In such an undertaking the unofficial agency should recognize the authority of the governmental department and give it every support possible.

4. Coördination under official control is often advisable, and in Knoxville has produced very desirable results.

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SANITARY CONSTRUCTION AND ARRANGEMENT OF MILK PASTEURIZING PLANTS*

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THERE has been a tremendous increase in the consumption of milk in this country during the past ten or fifteen years due to a number of factors, among which may be mentioned: a greater knowledge of the value of milk as a food; the serving of milk free or at cost in large industrial plants; the advocating of the use of milk by health or milk producers' organizations; and improvements in the quality of milk, raw and pasteurized.

This increase in the consumption of milk has resulted in increasing the responsibility of those who produce, handle and supervise our milk supplies. The work of safeguarding our market milk should, therefore, receive the earnest and conscientious attention of state and municipal health authorities and also of the producer and dealer.

PASTEURIZATION HAS INCREASED CONSUMPTION

The knowledge that proper pasteurization increases both the safety and keeping quality of milk has increased the con-

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sumption of pasteurized milk enormously, especially in the large centers of population. The amount of pasteurized milk consumed in some of our large cities is well over 95 per cent of the supply for domestic use. This is a remarkable record considering the relatively short time since the pasteurization of market milk was first generally adopted, and is an indication of the confidence the public has in the safety of this milk. If this confidence is not to be shaken, it behooves us to throw every safeguard possible around the production and especially the pasteurization of milk. This requires that attention must be given not only to the efficiency of the pasteurizing equipment and auxiliary machinery but also to the location, construction and maintenance of milk pasteurizing plants as a whole.

SELECTION OF SITE FOR PLANT

The primary considerations in selecting sites for milk pasteurizing plants are usually economic ones. Sanitary considerations, however, cannot be ignored. Public confidence is easily lost and once a plant gets the reputation of being dirty or permitting loose sanitary practices there is an immediate reflection on sales and sanitation becomes of primary importance.

In selecting a site for a milk pasteurizing plant, consideration should be given not only to railroad and transportation facilities and nearness to centers of distribution which affect only the economic side of the problem, but also to securing a site as free from dust and traffic congestion as possible.

The plant should be located as far as practicable from barns, stables and other places where flies may breed. If it should be necessary to locate a plant close to a barn or stable, special precautions should be taken not only to carefully screen or to take other measures necessary to exclude flies from the plant, but also attention should be given to limiting fly breeding by the storage of manure in tight boxes and its frequent removal during the fly season. Owing, however, to the difficulty of controlling flies in the vicinity of stables, it is very undesirable to locate plants in close proximity to such structures.

Under no condition should there be direct connection between any of the rooms in which milk is handled and stables or living quarters because of the danger of contamination of milk or equipment. The building should also be so constructed as to prevent the infiltration of dust from the street. All openings into the outer air should be effectively screened and the doors should be self-closing.

CONSTRUCTION OF BUILDING

It is always best to construct a new building for a pasteurizing plant rather than attempt to use or remodel an existing building. It is also desirable that the building be used for no other purpose than the handling of milk or milk products.

All parts of the building used for the handling of milk should be above ground in order to facilitate proper lighting and ventilation and to avoid the possibility of sewers and drains backing up into the milk handling rooms.

Although there are in existence a considerable number of frame buildings used for pasteurizing plants, these are, as a rule, among the older plants. Most of the modern plants are constructed of reinforced concrete, brick, hollow tile or cement blocks. These materials are more durable and lend themselves better than wood to sanitary construction for pasteurizing plants.

Consideration should be given to the possible future growth of the pasteurizing plant in order to plan the building and arrange the rooms and equipment with this in mind. Many insanitary conditions arise in outgrown pasteurizing plants as a result of overcrowding.

EQUIPMENT FIRST CONSIDERATION

The size and number of floors in the building will depend largely upon the amount of milk handled and the type of

equipment used. In fact, it is advisable to select the equipment and machinery to be used before drawing up the plans and deciding upon the arrangement of the rooms.

It is generally desirable to have plants of more than one story for both economic and sanitary reasons, except perhaps in very small plants. Most plants are usually from two to three stories high, depending largely upon the amount of milk handled and the nature of the territory in which they are located.

From a strictly sanitary standpoint it is preferable to have the building so arranged that milk may be received at, or elevated to, an upper story and allowed to flow by gravity through the pasteurizer and bottler. There are, however, no serious objections to the use of pumps provided they are of such construction that they can be maintained in a sanitary condition. It would be desirable, however, to reduce the number of pumps and length of piping to a minimum, and under no condition should the same pumps and pipes be used for both raw and pasteurized milk.

In order to guard against the contamination of pasteurized milk, it is very desirable to have not less than three separate rooms; one for receiving and dumping the milk, another for pasteurizing, cooling and bottling of the milk, and the third for the washing and sterilizing of containers. These rooms should be used for no other purpose.

To prevent dust and dirt from getting into the milk, the milk cans should be unloaded onto a platform outside of the building and pushed through a protected opening into the receiving room. Under no condition should trucks or wagons be driven into the receiving or other milk handling rooms for loading or unloading.

LAVATORIES AND TOILETS

Every plant should be provided with suitable and adequate toilet facilities. A lavatory with hot and cold running water should also be provided, as well as soap and individual towels. The washroom should be large enough to contain lockers and permit the employes to change and store their clothes. Water closets should be located in separate rooms which do not open directly into any room where milk is handled or containers are stored. Where necessary, a vestibule may be constructed to separate these rooms. The doors should be self-closing. These compartments should also be adequately lighted and ventilated. If privies are used, they should be separated entirely from any room in which milk is handled. They should be of sanitary fly-proof construction, should be properly screened and provided with self-closing doors and seat covers.

OFFICES, BOILER ROOMS, ETC.

Rooms for other purposes, such as office and drivers' room, are frequently included in pasteurizing plants, and boiler rooms and refrigerating rooms are necessary. An attempt has been made in this paper to place emphasis on the minimum requirements from a sanitary standpoint rather than to plan the complete ideal plant. The plant owner will in self-defense locate the boiler room so that visible dust will not penetrate the milk handling rooms.

Refrigeration as a rule is well taken care of without insistence on the part of the health officer since milk that will not keep brings complaints from customers. Artificial refrigeration is no doubt the best. The practice of cooling bottled pasteurized milk in vats of ice water which may be of questionable sanitary quality is to be condemned particularly because bottles may be submerged.

LIGHT AND VENTILATION

The building should be so located and constructed that all rooms in which milk is handled and in which containers are washed may be well lighted and ventilated. If natural lighting is used, the building should be located at a considerable distance from adjacent buildings and the

windows should be so placed as to give a good distribution of the light in the various rooms. The areas of unobstructed windows should not be less than 10 per cent of the area of the floors. The rooms should not be less than 12 feet high to the ceiling to facilitate ventilation and, unless mechanical ventilation is provided, the vent pipes should extend well above the roof of the building.

FLOORS, WALLS AND CEILINGS

The floors should be of watertight impervious material and properly sloped and drained. Concrete or other equally hard, non-absorbent material, which can be maintained in a sanitary condition and in a satisfactory state of repair, should be used. It is usually desirable to provide a hardener for cement finish of concrete floors or to imbed iron plates in sections of the floor subject to exceptionally heavy use. Care should be taken to provide tight joints.

The floors of milk handling and wash rooms should be so graded and sloped as to drain quickly into suitable covered and trapped floor drains. If public sewers are not available to receive the drainage, the drains should discharge into a waste disposal system located as far as practicable from the plant.

The walls and ceilings of milk handling rooms should be of tight construction and of material easily cleaned and not readily affected by steam. Tile, enameled brick, cement or matched wooden sheathing are very satisfactory. Ordinary plaster is very undesirable as steam readily loosens it and permits it to fall. If sheathing is used it should be painted with a steam resistant light colored paint to aid in the distribution of light and indicate the presence of dirt. Where other materials are used a light colored finish is equally desirable.

SUMMARY

Pasteurizing plants should be located in localities reasonably free from dust and congested traffic and separated from barns and living quarters. They should be well ventilated and lighted and properly screened to exclude flies. The material used for walls and floors of milk handling rooms should be hard, watertight, impervious and easily maintained in a clean sanitary condition. The rooms should be large enough to prevent crowding and should not be used for the storage of material or equipment not in actual use. The rooms should be subdivided and arranged to prevent the contamination of the milk. More attention paid to the design of milk pasteurizing plants will lessen the work necessary for proper sanitary maintenance and for supervision by the health authorities.

CLEANLINESS

THE mental hygienists tell us that bathing is a habit difficult to acquire unless the practice is begun when one is very young. Bathing is but one aspect of cleanliness, and though it relates to public health, it is a private matter. Various aspects of the subject of cleanliness will be treated from time to time through the medium of *The Cleanliness Journal*, the organ of the Cleanliness Institute with headquarters at 45 East 17th Street, New York, N. Y.

The institute announces that it "is a public service organization dedicated to higher standards of cleanliness in personal and community life." Broadly speaking it "will emphasize the relationship of cleanliness to character, self-respect and the higher values of life, as well as to practical questions of health, comfort and efficiency. The institute will occupy a field that is distinctive, yet related to many others. It will coöperate with schools, with health and social service agencies, and with other organizations whose purposes are related to cleanliness." As teachers in health instruction, we shall regard with interest the growth and attainments of the new organization.

PRACTICE OF PREVENTIVE MEDICINE IN INDUSTRY *

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THE fundamental principles of industrial medicine are preventive, curative and educational.

We have in industry a fertile field for the practice of preventive medicine, both in diseases and injury. In this field of medical endeavor the industrial physician has a distinct advantage, in that he has a definite group of persons who can be kept under constant supervision for at least 8 hours a day. During this period he is also in a position to advise in the conditions under which the men work. There is ample opportunity for research in preventive medicine and it is believed that the future will reveal that the industrial physician will play a prominent part in developing many of the methods to be followed in the practice of preventive medicine.

STRATEGIC POSITION OF THE INDUSTRIAL PHYSICIAN

The industrial physician's knowledge of the health hazards inherent to the various manufacturing processes enables him to formulate and put into practice the methods that will best protect the health of the workers. He is in a position to study the ill effects from inadequate illumination, ventilation, personal service facilities and safety devices. He also knows best how to cope with the specific industrial health hazards, such as poisonous substances, gases, fumes and dusts.

Non-industrial sickness is much more prevalent than either specific industrial diseases or injuries. The prevention of these diseases is a most difficult problem, in fact it is the major problem, not only because they are the most prevalent, but because they cause the greatest amount of time lost from work. Furthermore, there are many factors in respect to their prevention that have not been solved.

PREVENTIVE PROGRAM

Our preventive program consists of the following:

1. Physical examination of applicants for employment
2. Advice in the placement of the worker to a job for which he is physically and mentally fit
3. Supervision of the maintenance of working conditions and personal service facilities in so far as they relate to health
4. Keeping employes under constant supervision in order to detect diseases in their incipiency
5. Treating all cases of illness and injuries as soon as they are detected, regardless of how trivial they may be
6. Using such accepted methods as vaccination and inoculations in the prevention of diseases which respond to such treatments
7. Examination of employes who have been absent on account of sickness in order to ascertain their fitness for resuming work

When an applicant for employment presents himself he is given a thorough examination in order to ascertain his mental and physical fitness for performing the tasks for which he is intended. Having a thorough knowledge of the

* Read before the Industrial Hygiene Section of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 21, 1927.

physical and mental requirements of the various jobs in the plant, we are able to advise in the placement of certain handicapped workers. If the applicant has defects, and most of them have, he is advised in regard to them. If it is possible to do so, he is advised to have these defects corrected in our medical department; otherwise it is suggested that he have them corrected on the outside. If the applicant has defects that will prevent him from performing the work for which he is hired an effort is made to place him at a job for which he is suited. If we have not a job that he can fill he is advised to seek employment elsewhere. To the rejected applicant is explained the type of work that he should secure. Our policy in respect to a reject is to impress upon him that it is not our desire to reject him; but on account of his physical condition it is not fair to the man himself to place him on a job that may injure his health. We have few rejections, largely due to the fact that the workmen appear to have good knowledge of the jobs and the requirements necessary to fill them.

When a successful applicant is placed he is given instructions by his foreman as to the hazards inherent in his job. He is also instructed to report immediately to the plant hospital for treatment of any illness or injury that may occur, regardless of how trivial it may be. He is also instructed to report immediately any conditions about his machine or work which appears to him to be a hazard.

Regular tours of inspection are made by the doctor through the various shops in order to check up on the health of the workmen and the conditions under which they labor. During these trips advantage is taken of the opportunity to become acquainted with the workmen. This is a most satisfactory way of obtaining the confidence and coöperation of the men. Coöperation of the foremen is also of tremendous value, for they are in daily contact with the men and can observe and advise them to seek prompt treatment for their complaints.

The services of the medical and dental department are free to the employes and this is an important factor as it acts as an inducement to the workers to seek treatment for their trivial ailments or injuries which they might otherwise neglect. It is the trivial complaints or injuries that workmen are most apt to neglect. Probably the main reason is that they feel that their income is not sufficient to permit them to consult their family physician.

Practically every manufacturing process has one or more health hazards. If the hazard is of a poisonous nature such as chemicals, gases, fumes or dusts, the operator is protected by either an exhaust system, respirator, suitable clothing or other devices depending upon the nature of the hazard or process. Suitable guards are placed on all machines and the operators are instructed regarding their purpose and the necessity for seeing that they are always in place and in repair. Workmen exposed to poisonous substances or other specific hazard are examined at regular periods, and a close check is kept of the protective devices.

The safety organization in our establishment plays a very important part in the prevention of injuries. The personnel of the safety committee consists of workmen from each department. The director of industrial relations and the doctor act in an advisory capacity. Regular stated meetings are held by the safety committee and each member is required to report upon the conditions in his department. Recommendations made by the committee are sent to the works manager, who issues orders to have the conditions reported by the committee corrected.

Stretchers are kept in each department and members of the safety committee are instructed to take charge of transporting injured employes to the medical department. This assures the quickest and best means for conveynig injured employes and at the same time minimizes confusion.

Employes are encouraged to receive

treatment for their non-industrial injuries. These injuries are usually minor in nature and occur most frequently during the summer months. Treating these non-industrial injuries is advisable, for often they are neglected and not infrequently they become infected.

CURATIVE PROGRAM

The medical department is open during the entire work period. The employes are informed that there are no restrictions placed upon their visiting the department; no red tape is at all necessary. All that is required is for an employe to tell the foreman that he is going to the hospital. Anyone taken ill while on the job who desires to go home is required to secure a medical pass; this is done that a record of illness may be kept. An employe taken ill at home is required to notify the medical department. No employe is compelled to receive treatment at the plant hospital if he prefers to consult his own physician. An employe appearing to be too ill to go home alone he is taken there. If it is advisable he is kept in one of the wards until it is safe to convey him either to his home or to one of the hospitals.

We do not treat employes' families, nor do we treat employes in their homes, unless we learn that their financial condition is such that they are unable to secure adequate medical attention.

Employes are constantly urged to receive treatment for their trivial illness. The value of early treatment is stressed. Diagnosis of a complaint is not left to the employe, but he is carefully examined, his trouble diagnosed and treated according to accepted methods.

Minor injuries, because they are potential sources of infection, receive the same careful treatment that is given to severe injuries. Redressings are made daily, or oftener if necessary, and continued until the wound has completely healed. Infections are rarely seen, but when a case does occur there is alway a history of neglect.

The equipment in our medical department is adequate for the type of cases we are capable of treating. We not infrequently see cases that require the services of a specialist, and the patient is advised to consult one. It is not our policy to recommend any particular physician; but when necessary we show the patient a list of the recognized men and let them make their own choice. It is sometimes necessary to aid the patient by telephoning for an appointment and giving the doctor all the information we have respecting the case.

The employes have a sick benefit association, consisting only of employes, to which they contribute a small fee each month. When sick for one week or more the employe is visited by a sick committee and after presentation of a physicians' certificate receives a stipulated amount of money each week.

The dental department is operated on a part-time basis and is free of cost to the employes. This service consists of examinations, extractions, and general prophylaxis.

EDUCATIONAL PROGRAM

The educational program in health maintenance is of vital importance. The fact is, that unless we educate our employes we can expect to accomplish but little in our efforts to prevent sickness and accidents. The education of our employes begins the first day and continues during the entire period of employment. This education is not forced upon them; but is presented in a manner that cannot offend. Confidence and coöperation are best secured in this way. Excellent results are obtained when the employe can be taught to think and draw his own conclusions. In this way what he learns will stick and will be conveyed to his home life. We use two methods in our educational work—mass information and individual contact. The latter is by far the more effective.

The workers, while in the shop, have constant reminders before them in the

form of health and safety posters. These posters are carefully selected and placed in advantageous positions in each department. They are selected for brevity and attractiveness. In the reception room of the medical department is a large blackboard which daily conveys messages on safety and the maintenance of health. Each issue of the plant journal contains an article on health. The subjects covered by these articles fit in well with the prevailing diseases at the time the journal is published; for example during the winter months common colds and their complications are the subjects most discussed, and during the summer months diseases and disturbances of the gastro-intestinal tract. Every effort is made to stress the importance of preventing sickness and early treatment of sickness that cannot be prevented.

MEDICAL STATISTICS

Medical records are kept of all employes, consisting of physical examination, personal history of illness and injuries. From the daily records are compiled monthly and annual summaries. It is only through carefully kept medical records that we can visualize and measure the results of intensive medical supervision.

Our medical department was started in 1920. The personnel at that time consisted of a part-time physician, a part-time dentist and a full-time nurse. From 1920 to 1924 inclusive records were kept of injuries, but not of absenteeism on account of sickness. Beginning with 1925 a full-time physician was employed, and from this time on absenteeism records were kept and the medical program as outlined was put into effect.

During 1925 and 1926 there was a plant population of about 700. During 1925 there were 8066 cases treated; this does not include retreatments nor dental cases. Of this number 59 per cent were medical and 41 per cent injuries. During 1926 there were 9869 cases, 54 per cent medical and 46 per cent injuries. The increased number of cases during 1926 over that of 1925 was not due to an actual increase in either sickness or injuries but was the result of the educational campaign which encouraged the employes to seek treatment for their trivial complaints and injuries, many of which they formerly neglected.

That loss of time on account of injuries was reduced is shown by the following figures: during 1920, the first year of the medical department, injuries caused an average loss of 2.1 days per man per year as contrasted with but 1 day per man per year for both 1925 and 1926. This is a reduction of slightly more than one-half.

Specific industrial diseases have been practically eliminated in our establishment. Non-industrial sickness on the other hand is the most frequent complaint, and causes considerably more loss of time from work then do injuries, and for this reason becomes our major problem. Unfortunately we have no absenteeism records for the period previous to 1925. We might, however, for the sake of comparison, assume that our employes lost on the average of 8 days per man per year. This I believe is the average as given in various articles that have been published during the past few years.

Our records for 1925 show that there was an average loss of 6.1 days per man per year, the result of the first year's effort to reduce absenteeism on account of sickness. During 1926 our efforts to reduce absenteeism still further was very encouraging, for during this year the employes lost but an average of 4.4 days per man per year as contrasted with 6.1 days for 1925 and with 8 days as the average for the general industrial population.

The number of employes during the two years was the same. During 1926 there were about 22.4 per cent more requests for treatment than during 1925, yet time lost was 26 per cent less than during 1925.

Respiratory diseases were the most frequent single cause of both sickness and

loss of time; 41 and 35.5 per cent of the total cases of sickness during 1925 and 1926 were due to diseases of the respiratory tract. During 1925 these diseases account for 32 per cent of the total time lost on account of sickness, and during 1926 account for 26.8 per cent of the time lost. Special efforts were made during 1926 to reduce the frequency and severity of respiratory diseases. The result of this work was that the frequency rate was unaffected, but the severity was materially reduced, the days lost being 37.8 per cent less than during 1925.

Gastrointestinal diseases were the second most frequent cause of sickness. They ranged from 29 to 35 per cent respectively for 1925 and 1926, and caused about 8 per cent of the total time lost.

Rheumatic and neuralgic diseases accounted for 4.5 per cent of the time lost. The remaining diseases recorded, including surgical operations and chronic diseases, account for 55 and 54 per cent respectively of the total time lost during the two years.

An interesting point brought out by analysis of our records is that the employes who received treatment in the plant hospital lost 1.1 days per case of illness as compared with 5.3 days for those who received treatment outside.

Ninety-eight and 2 tenths per cent of all injuries were of the "no lost time" type; while only 1.8 per cent were "lost time" cases. The "lost time" cases lost on the average of 16 days per case.

The character of injuries in the order of frequency were: lacerations, eye injuries, contusions, burns, sprains, fractures, dislocations and amputations. About 50 per cent of the injuries involved the hands and 85 per cent of the hand injuries involved the fingers.

The principal causes of injuries in the order of frequency were: hand labor, machine causes, falling material, and falls.

The medical program as carried out by us during the past two years consists of: prevention of sickness and accidents, prompt treatment of sickness and injuries not prevented, and education of the workmen in health preservation.

That this program is a workable one is evidenced by the records which show there was a reduction of over 50 per cent in the time lost on account of injuries and approximately 50 per cent reduction in absenteeism on account of sickness. It is believed possible to reduce still further our absenteeism rates, and in order to do so our efforts must be chiefly directed toward personal carelessness as a cause of injuries. To reduce absenteeism further on account of non-industrial sickness we must continue educating the employes and also profit by our experience in preventive measures. Specific industrial diseases in our plant are under excellent control. It is only through an unavoidable accident or personal carelessness that a case does occur.

The reduction of absenteeism is not the sole thought in our work. A great number of complaints which affect our workers are not severe enough to cause them to remain from work; yet they are severe enough to interfere materially with their efficiency; for example, rheumatic and neuralgic diseases, diseases of the nose and throat, muscle strains, sprains or bruises, mild colds, digestive disturbances, etc., etc. In fact, 86 per cent of the requests for treatment were of the "no lost time" type and only 14 per cent were "lost time cases." In the "no lost time" cases we are unable to estimate the cost of disability in both wage loss and loss in production; yet it can be conceived that it must be tremendous. Loss in production from these causes will probably exceed that from actual days lost due to both sickness and injuries.

We do not expect, with our present knowledge of preventive medicine, to obtain or maintain a physically perfect working force or one that will not miss a day from work; but to improve our methods so that we may still further improve the physical condition of our workers.

LABORATORY TESTING OF CLINICAL THERMOMETERS AS A PUBLIC HEALTH PROBLEM *

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IN CONNECTICUT † alone is the laboratory testing of clinical thermometers a State Department of Health activity. The Connecticut thermometer law is a licensing law in that licenses are issued to a manufacturer to engrave certain thermometers with the Connecticut Seal, including a designated letter assigned to him following (1) application on special form, (2) inspection of his place of manufacture and (3) laboratory testing of representative lots of his thermometers furnished by him to demonstrate his ability to manufacture an accurate instrument. Licenses are revoked or suspended by the State Commissioner of Health when laboratory tests show more than 5 per cent below state requirements, the manufacturer having first been given the privilege of a formal hearing to show cause why such action should not be taken. Under the provisions of the Connecticut law the Commissioner of Health is empowered to promulgate tolerances and specifications for clinical thermometers and a correct clinical thermometer is designated as one which conforms to such specifications. The department is empowered to certify or to seal a correct thermometer, to seize one that is incorrect and to issue permits to manufacturers.

When the clinical thermometer law was passed by the General Assembly in 1921, the status of thermometers already in use was unaffected as the law applies only to the sale of this commodity. At the time testing was begun all dealers were notified by the State Department of Health that after six months only Connecticut Seal thermometers would be legal for sale in the state, except that thermometers already on the shelves of dealers might be sold when accompanied by certificates of accuracy from the Bureau of Laboratories provided they had been submitted for certification within the same period. Aside from the testing of the above mentioned thermometers for certification, thermometers are routinely received for examination from the following sources:

1. Clinical thermometers submitted by the manufacturer when applying for license as a representative sample of his product, usually in lots of from 50 to 200.

2. Connecticut Seal-marked clinical thermometers submitted in duplcate by the manufacturer as exact samples of each type he wishes to manufacture, one sample to be retained by the department.

3. Connecticut Seal-marked thermometers secured from dealers, hospitals, institutions, physicians and individuals for inspection purposes.

4. Manufacturers' standard thermometers (not clinical thermometers) for comparison with the

* Read before the Laboratory Section of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 20, 1927.

† For the Commonwealth of Massachusetts a clinical thermometer law is enforced by the Division of Standards.

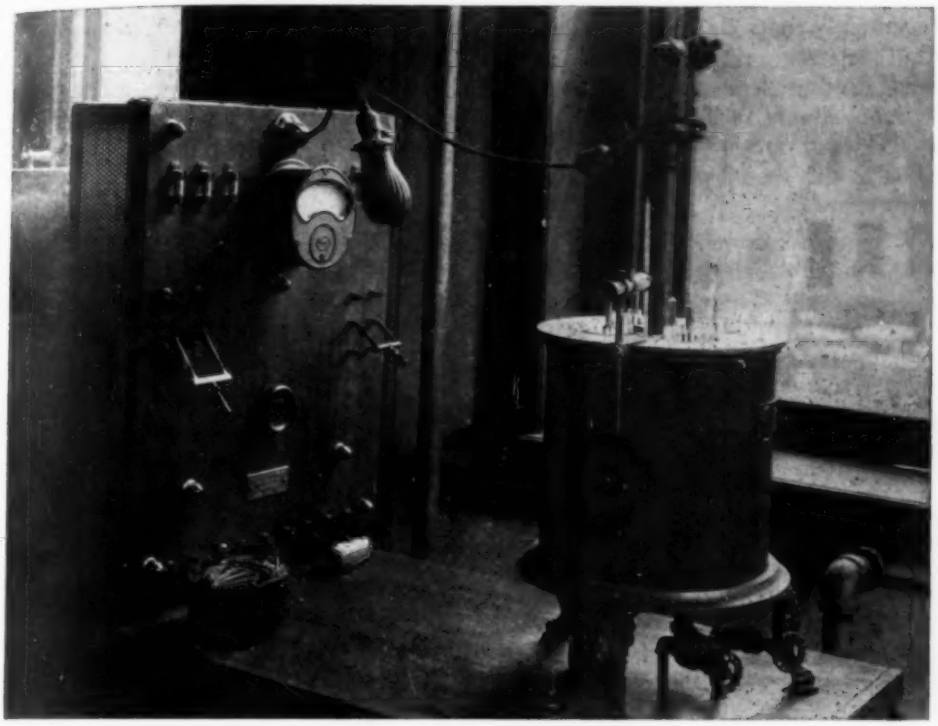

FIGURE I—Water bath showing water connections, electric panel and stirring-motor shaft.

Connecticut State Clinical Standard Thermometer.

The securing of clinical thermometers for inspection and test is facilitated by a requirement in the law that the manufacturer must submit to the department the results of his factory test of each thermometer by serial number, together with the date of testing and the name and address of the purchaser. This information is invaluable in checking up on the clinical thermometers sold in the state, particularly when it is desired to secure the product of any firm for laboratory testing. In the Bureau of Laboratories clinical thermometers are examined for accuracy of readings within required tolerances, for tendency to "retreat" or failure to hold maximum reading, for hard shaking, for the presence of entrapped gases or of moisture in the bore, dirt in the mercury, and for physical imperfections.

TEST FOR ACCURACY OF READINGS

In this test each thermometer must show no error greater than 0.3°F. (0.2°C.) between any two successive test points, and must be accurate within a tolerance of plus or minus 0.2°F. (or within 0.1°C. if the scale reads in Centigrade degrees) in two separate readings at each of four test points which are either 96°, 100°, 104° and 106°F. or 36°, 38°, 40° and 41°C. when compared in a specially designed water-bath (Figure 1) against an official standard thermometer that in turn has been calibrated against the State Clinical Standard Thermometer, the accuracy of which is periodically ascertained by standardizations at the U. S. Bureau of Standards. The thermometers, in metal holders, are centrifugalized (Figure II) until the mercury column falls below the 96° F. (36° C.) test point. The racks of thermometers are then placed (Figure III) in the water-bath in which the temperature of the water can

be accurately controlled at any given point within the testing range. By means of an electric heating element or by allowing the hot-water supply to flow through a heating coil built around the inner wall of the bath, the mercury is brought up to approximately 95.5°F. (35.5°C.); that is, to within 0.5° of the first test point. From this point to within 0.2° of the test point the temperature is raised at the rate of 0.3° per minute, and for the balance of the distance at the even slower rate of 0.1° per minute.

When the standard thermometer shows the correct temperature has been reached, cold water is immediately run through the coil previously mentioned to quickly lower the temperature (but not the readings of the clinical thermometers, since they retain their maximum); the racks are removed and the readings are taken with the aid of a magnifying lens. The racks of thermometers are now returned to the bath and a similar procedure carried out at the next higher test point. Later, an exactly similar series of comparisions is made following the "hard shaker" test.

TEST FOR FAILURE TO RETAIN MAXIMUM READING

When the last reading in the tests for accuracy has been taken the racks of thermometers are replaced in the bath and the temperature raised to 106°F. (41°C.), or to 108°F. (42°C.) if the scale will allow, and the thermometers are allowed to cool very slowly until the temperature of the bath has dropped at least 1°. This is a special test at the top of the mercury column for "retreaters," or thermometers that fail to hold their reading—a serious defect. This type of error is also detected by means of the readings in the tests for accuracy taken twice at each of the four test points. Although a thermometer is allowed a retraction of 0.6°F. from the test point in this test at the top of the mercury column without being on this count alone classed as a "retreater," a slight deviation indicates a "loose" contraction which is subsequently watched.

Since the test for "retreaters" is designed to determine whether the instrument may be expected to fail to hold its readings in actual practice, it has been urged that the conditions of the test

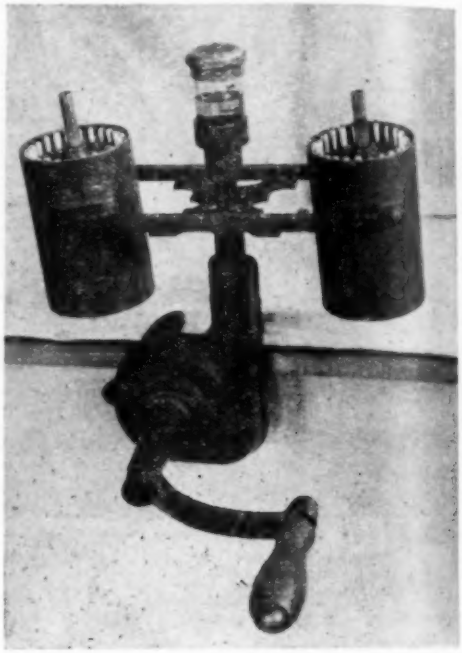

FIGURE II—Hand centrifuge showing racks of clinical thermometers and glycerin speed indicator.

should approximate as nearly as possible the actual conditions obtaining when the thermometer is removed from the mouth. The rapid cooling at each test point probably approximates such conditions fairly closely. In our experience the slow-cooling test in addition is considered desirable, since a thermometer with a tendency to retreat is potentially of danger to the patient through the inaccurate information furnished to the physician, and we do not believe the use of both tests constitutes unduly severe laboratory conditions.

Even the use of special tests upon thermometers in which there is a tendency for the contraction to be too open is justifiable in our opinion because of the strong possibility that a weak contraction may later become still weaker.

TEST FOR "HARD SHAKERS"

When the first series of tests for accuracy is completed the thermometers are tested for "hard shaking" or "tight" contractions.

The racks of thermometers are centrifuged (Figure II) at a speed of rotation

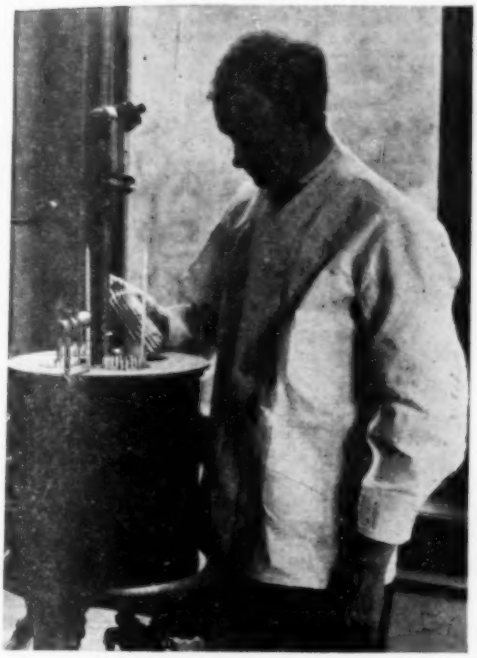

FIGURE III—Placing holder with clinical thermometers in bath. Illustration shows two standard thermometers in use.

that has been determined in the U. S. Bureau of Standards as "corresponding to what is considered the maximum muscular effort that should be required to throw back the index." This speed must be determined for each centrifuge. Any thermometer in which the mercury fails to fall below 96° F. (36° C.) in this test is rejected as a "hard shaker." Although theoretically such an instrument is intrinsically a more accurate instrument than one that does shake below 96°F., it is rejected because of the difficulty that would be later experienced in using it.

Following the "hard shaker" test the second series of tests for accuracy are made.

TEST FOR ENTRAPPED GASES IN THE MERCURY

In this test the thermometers, in racks, are centrifuged until the mercury column is at least below the 96° F. (36° C.) mark to clear the bore of most of the mercury, and the thermometers are placed in a beaker of water at a temperature between 95° F. and 98° F. to assure that sufficient mercury is in the bore to allow the test to be easily carried out.

The column of mercury is then separated by "shaking-off" the thermometers; that is, by very slowly (to avoid throwing the separated column of mercury to the upper end of the bore) centrifuging them, inverted, in the racks. After the mercury column is separated by this operation, the bulbs are immersed in a freezing mixture of about 1 part of sodium chloride* to 5 parts of crushed ice in a beaker and allowed to remain about 15 minutes, when each thermometer is taken individually from the brine and the bulb tapped gently on a board or table top covered with six or eight thicknesses of hand toweling to cause any particles of air entrapped in the bulb to rise to the top of the mercury.

The mercury in the bulb is then caused to rise above the constriction by holding the bulb of the thermometer near the flame of an alcohol lamp. If the two portions of the mercury column fail to join completely by reason of any entrapped gas or moisture in the bore the thermometer is rejected. In the trade this test has become universally known as the "air" test. Moisture in the mercury is determined in this test and also when a small portion of the mercury column lodges at the top of the bore and fails to shake down when the thermometer is centrifuged.

PHYSICAL EXAMINATION

Each clinical thermometer is examined

* A mixture of 1 part of crushed ice and 2 parts of calcium chloride gives a temperature of approximately —37°C., which is just slightly above the freezing point of mercury and results in a more severe test than we consider necessary for routine testing.

TABLE I

CLINICAL THERMOMETERS TESTED BY CONNECTICUT STATE DEPARTMENT OF HEALTH

Year	Thermometers Tested for All Purposes					Thermometers Tested for Permits [1] to Seal					Thermometers Tested for Certification [2]				
	Number Examined	Number Passing	Number Rejected	Per cent Passing	Per cent Rejected	Number Examined	Number Passing	Number Rejected	Per cent Passing	Per cent Rejected	Number Examined	Number Passing	Number Rejected	Per cent Passing	Per cent Rejected
1922–23..	912	876	36	96	4	856	822	34	96	4	56	54	2	96	4
1923–24..	1,850	1,551	299	84	16	1,006	931	75	93	7	844	620	224	73	27
1924–25..	1,445	952	493	66	34	101	25	76	25	75	1,344	927	417	69	31
1925–26..	755	590	165	78	22	193	164	29	85	15	562	426	136	76	24
1926–27..	6,286	5,624	662	90	10	860	740	120	86	14	5,426	4,884	542	90	10
Total..	11,248	9,593	1,655	85	15	3,016	2,682	334	89	11	8,232	6,911	1,321	84	16

[1] Lots of clinical thermometers tested before granting licenses to manufacturers.
[2] Clinical thermometers examined for inspection purposes.

to see that the coloring matter remains uniformly in all graduations; that the graduation marks are regularly and not too closely spaced; are of uniform width; that the numbers are easily legible; and that the thermometer is free from physical defects, including acid scars, traps in which germs might lodge and cracks in the glass. Thermometers with colored bulbs are rejected.

SUMMARY OF FIVE YEARS' ENFORCEMENT

Although the law was passed in 1921, routine laboratory testing did not begin until nearly two years later. The results of five years' laboratory testing is summarized in Table I.

To date 14 firms have held permits to sell clinical thermometers in Connecticut; 3 licenses have been revoked and in addition 2 firms have surrendered their permits under pressure from the department. Two of the 3 manufacturers whose permits were taken from them were later reinstated. It has been necessary to suspend several licenses temporarily while the manufacturer was given an opportunity to correct factory conditions, adjust labor troubles, or show cause why his license should not be revoked. Licenses have not been granted to 8 applicants who have submitted thermometers, and 13 other concerns have made application but did not submit samples for test. The department has had correspondence with 35 firms. At the present time 11 thermometer makers hold Connecticut permits.

CONCLUSIONS

Connecticut experience convinces us that the laboratory testing of clinical thermometers is a desirable undertaking on the part of the state in indirectly safeguarding the health of its citizens and in preventing fraud. We believe the testing of clinical thermometers should be a state public health activity and not carried out by some other state agency, because the close coöperation between the state health department and physicians, hospitals and nurses facilitates the securing of thermometers for laboratory testing; minimize the work of enforcement, of condemnation of inaccurate instruments, and of their replacement by the manufacturer to the user; and enables the health authorities to be of additional assistance to the medical profession in the control of contagious disease.

WHAT OFFICIAL PUBLIC HEALTH AGENCIES SHOULD DO ABOUT CANCER *

ACCORDING to the latest U. S. Census returns, the total number of deaths from cancer in the registration area in 1924 was 91,138. The death rate based on these figures was 91.9. At this rate, over 103,000 people die of cancer in the continental part of the United States every year. The official cancer death rate in the United States has increased 30.9 per cent during the last twenty years. The last year's increase was 2.8 per cent.

All parts of the country, all races, all classes and both sexes are affected by it. More people die of cancer than of all the infectious diseases combined, excepting tuberculosis. More people die of cancer than are killed by railroads, street cars, automobiles, fires, drowning, mining accidents, machinery, poisons, homicides and suicides—all put together.

According to the official statistics, 1 in 10 of the men and women now living in this country are destined to die of cancer, and of all women who die between the ages of 45 and 65 years 1 in 5 will succumb to this disease.

Practically every case of cancer is fatal unless it is treated skillfully and in its early stages. It is the most fatal disease known to modern civilization.

The number of persons in the United States between the Atlantic and the Pacific who are suffering from cancer is estimated at 300,000.

There is reason to believe that the mortality from cancer which is experienced by the people of this country actually exceeds the figures just given. All deaths from cancer are not reported as due to that disease, owing to deference on the part of some physicians for the feelings of the family of the deceased, who sometimes erroneously feel that the presence of cancer implies a family taint. Further, autopsies show that many more deaths are caused by cancer than are known to have been brought about by that disease. Such errors occur in modern, well equipped hospitals with every facility available for diagnosis which science possesses. It, therefore, seems fair to infer that a large percentage of error exists in private practice, the effect of which is to make the official cancer death rate too low.

Cancer is essentially a disease of maturity and old age, although it has been pointed out by various writers that children and even infants are by no means immune to it. Of all the deaths in the registration states, 98.8 per cent occur after the age of 20. What is termed "cancer" is in all probability a group of diseases, and until these are separated and can be distinguished from one another, the statistical and epidemiological study of the subject will be unsatisfactory.

MEANING OF "CONTROL" AS APPLIED TO CANCER

According to the best information, cancer is not contagious or infectious, nor due to a specific parasite. No article nor condition of food, water, air, clothing or personal habit has ever been associated with cancer in a causative way. It occurs in all climates. It is common among the lower animals.

Usually some form of chronic irritation precedes the appearance of the growth. Not infrequently a congenital or

* Report of the Committee on Cancer, to the Health Officers Section of the American Public Health Association, at the Fifty-sixth Annual Meeting at Cincinnati, O., October 19, 1927.

other malformation, perhaps trifling in itself, is the site of the cancer. Sometimes months and even years after the irritation seems to have ceased the cancer develops. Certain forms of moles occasionally develop into cancers. There is no part of the body which may not be the site of a cancerous growth.

The preponderance of opinion among qualified students of the subject indicates that cancer is not a constitutional disease with a local manifestation, but a local condition at first. Other things being equal, the more strictly local it is, the better the chance of cure. In the course of time, if the cancer continues to grow, small particles may become dislodged and carried to other parts of the body where new cancers develop. The patient is then usually beyond hope of cure. Much, however, can be done in the way of palliation and the extension of life where cures are impossible.

Cancer is not in itself hereditary, although a certain susceptibility or predisposition to it seems to exist in some families for a few generations, at least. This susceptibility has sometimes a relation to particular organs. For example, it is perhaps cancer of the breast which so occurs.

Among positive factors, various conditions associated with industrial occupations are to be noted as causative factors. Much has been written about the cancers of chimney sweeps, mule-spinners and analin workers. It cannot be said that the existing knowledge of the subject warrants discrimination against industrial occupations, except in unusual circumstances.

A certain amount of preventive doctrine has been built up about the irritation theory of the causation of cancer. Thus, people are cautioned to have their dental work properly and promptly attended to, lest an irritating point or edge of a tooth or plate lead to cancer. Moles and other skin imperfections must not be continually rubbed or otherwise irritated, or cancers may develop at these points. Dark, pigmented moles should be watched for any change in their size or appearance, particularly after the age of 30 years. They sometimes lead to the most active and fatal forms of cancer. Lacerations of the cervix produced by childbirth should be promptly repaired. These are examples of the precautions which are properly urged against the production of cancers in the various parts of the body.

There are no sanitary, hygienic or other general procedures which apply to the prevention of cancer, such as are available for the prevention of many other diseases.

The word "control" has a special meaning when applied to cancer. It has no reference to the possibility of eradicating the disease. All of the resources which are available for a crusade against cancer are medical, or, rather, surgical and radiological. They require the cooperation of patient and physician. They are efficient in proportion to (1) the discoverability of the cancer, (2) the location of the cancer, (3) the stage of advancement of the cancer, and (4) the physical equipment, skill and ability which are available to diagnose and treat the case.

To effect cures the cases must be discovered early and treated skillfully. The cancers must be so located as to admit of this. The treatment is almost always remedial.

For the most part, the preventive measures aim to remedy defects or conditions which might lead to cancers. If all the knowledge now existing concerning the control of cancer could be put into effective use, there would be nearly as many cases but fewer deaths from this disease.

It is desirable to consider how great a saving in lives and suffering is possible through cancer control, assuming the general employment of all the information which now exists concerning prevention and cure of cancer.

Some have put the lives that might be saved at one-half the number of deaths which now occur through cancer among

women and one-third of those among men, provided the cancers were in accessible locations and had not spread by metastases. Others have placed the possible saving much lower. There are no reliable statistics by which to go. It is a matter of opinion.

The number of cures possible depends largely upon what is meant by the word "cure." The usual meaning of this word does not apply, because cancers sometimes recur after all signs of them have been removed. To avoid the difficulty, surgeons sometimes speak of "3-year-cures" or "5-year-cures." Even longer intervals of time are sometimes indicated through which the patient should be free from recurrences before being regarded as really cured.

A marked reduction in the officially recorded death rate is hardly to be expected with the knowledge which exists at present and in view of the difficulties in the way of putting this knowledge completely into effect.

Absolute and final cure is not the only object which should be considered by official public health agencies as a proper one for their attention. To alleviate suffering and prolong life are objects in every way worthy of their efforts.

Cancer control has to do not only with the availability of the skill required for diagnosis and treatment, but with the cost of it. It is important that the resources in personnel and equipment required for the discovery and prompt treatment of early cases of cancer shall be adequate for those persons who need them.

PERSONNEL AND EQUIPMENT NEEDED FOR DIAGNOSIS AND TREATMENT

A small proportion of cancer cases can be discovered with considerable certainty by the patients and at a stage sufficiently early to admit of successful treatment. These are cases of skin cancer. Any sore that will not heal after a period of several weeks may be strongly suspected of being cancer. But cancer of the skin causes only about 3 per cent of the total deaths from cancer. Skin cancer may be looked upon as an exception to the rule that the patient cannot discover the disease in a sufficiently early stage to admit of cure, unless by following special instruction. Instruction must be given to the public in the form of a knowledge of what may be called "the danger signals of cancer." Stated in the briefest form, these danger signals are as follows:

Any lump, especially in the breast
Any irregular bleeding or discharge
Any sore that does not heal
Persistent indigestion with loss of weight

These symptoms may indicate the presence of some other condition and not cancer. But they can be learned by the general public and, if heeded, can lead to the saving of many lives.

When a danger signal is believed to be present, the patient should immediately seek competent medical attention. It is necessary to apply to a hospital or reputable physician for a thorough examination. The hospital or physician should be prepared to make the necessary examination or refer the patient to a place where a suitable examination can be made. Where the cancer is far advanced, there is relatively little difficulty in detecting it. It is in the early and curable cases that this is most difficult.

Not all hospitals are equipped with personnel or apparatus suited to diagnose and treat all of the cancer cases which come to them. Practically every hospital where surgery is done is able to take proper care of skin cancers, providing they are not too far advanced. They can often give proper attention to cancers of the breast and of the uterus, of the lip and mouth. Much depends upon the individual case; whether it is simple or complicated, early or advanced; whether it requires surgery alone or treatment by X-rays or radium, or a combination of surgery with one of these. Cancer in other parts of the body than those named

is more difficult to diagnose in its early stages and it is apt to be harder to treat successfully.

Under the best circumstances generally obtainable in modern, well equipped hospitals and large centers of population, many cases of cancer will fail of diagnosis before death. It has been estimated that there are from 30 per cent to 50 per cent more deaths from cancer in these hospitals than are diagnosed before postmortem. If the proportion of genuine cases of cancer which apply for diagnosis is to be as large as possible, a hospital must have a highly trained staff and thoroughly modern equipment.

The diagnosis and treatment of cancer is really a hospital undertaking and a well trained team of from 6 to 10 specialists is required. These specialists include the following: a clinician, roentgenologist, physicist, pathologist, laryngologist, gynecologist, and general surgeon, unless the field of surgery can be subdivided into the various specialties. Provision should be made for a system of record making and record analysis on a better scale than is commonly found in general hospitals.

DETECTING CANCER

The family practitioner is the key man in cancer control but there is little he can do himself, either to diagnose cancer positively in its early stages or to treat it successfully. He should be the guide, philosopher and friend who keeps informed of all the resources in personnel and equipment which are available in his territory for his patients and he should be quick to refer his suspected cases of cancer to those who have had more experience and opportunities for observation than he has had.

Periodic health examinations, made with an eye alert to cancer, may prove helpful in detecting cases which otherwise would become too far advanced to admit of cure. But unless facilities are available for detecting the early cases which are not readily discoverable, general health examinations will sometimes fail to reveal cancers which are present. Special examinations for cancer should be made at least once a year among persons of 40 years of age or more as a precaution. This is particularly desirable for persons in whose families an exceptionally large amount of cancer has already occurred.

TREATMENT

The resolution of the international meeting on cancer control held in America in 1926 may be accepted as an authoritative statement of the ways in which cancer should be treated in order to afford the best prospect of cure. The resolution passed by the meeting stated that the most reliable forms of treatment, and, in fact, the only ones thus far justified by experience and observation, depend upon surgery, radium and X-rays. There are scores of so-called "cures" for cancer but most of them apply to external cancer only, but they are uncertain and usually painful and needlessly mutilating.

In any and every case the cancer must be removed or destroyed.

THE EDUCATIONAL CRUSADE

Since 1913, and even before that time, organized efforts have been made to arouse public interest in the control of cancer. Not a few of the state medical societies have had special committees on cancer; some of these have been called "cancer commissions." They have promoted the reading of papers before physicians and surgeons, the holding of hospital conferences and lectures and the writing of newspaper articles for the general public.

For fourteen years the American Society for the Control of Cancer has conducted a systematic campaign throughout the United States and in Canada to instruct the general public and to stimulate the interest of physicians and surgeons in the prevention and cure of this disease. "Cancer Weeks" have been held under the auspices of the society throughout the United States.

Official public health administrators have coöperated in the efforts of the medical societies and the American Society for the Control of Cancer by publishing articles in their periodicals, by distributing pamphlets, and otherwise. It cannot be said, however, that they have devoted an amount of time and money to the control of cancer comparable with the attention given to the suppression of other diseases. The reason for this has been that official public health administrators have not looked upon cancer as a distinctly preventable disease, nor as one against which it might be possible to make headway. Cancer has generally been regarded by departments of health as a degenerative disease and one against which there is no definite and effective procedure such as is available for the control of infectious diseases. They have felt that cancer could best be combated through the joint action of patients and physicians and that departments of health, which are charged especially with the prevention rather than the cure of disease, could cooperate best in this crusade by helping to instruct the public in the part which it should play.

Recently events have occurred which indicate a change in this official attitude. The "Cancer Weeks" held annually for four years at Detroit have resulted in the discovery of a considerable number of unsuspected cancer cases. Provision has been made on these occasions for free diagnoses at the hospitals, and people have presented themselves for examination in large numbers and in some cases with a fair prospect of cure. As a result of this public agitation and the continued coöperation of the medical profession, a bureau on cancer has been established in connection with the City Department of Health and a survey of cancer in the city is contemplated.

In the city of New York, a municipal cancer institute was established in 1925. The object of this institution is to provide diagnostic skill and proper treatment without charge. Even advanced cases can here find hospital care and attention.

For many years the State of New York has maintained an institute for the study and treatment of cancer at Buffalo with the primary object of carrying on scientific researches in connection with that disease, but with hospital accommodation also.

In 1925 and 1926 the Commonwealth of Massachusetts made a study of cancer through its state departments of health and welfare. This was a comprehensive survey and was intended to reveal the number of cases and the adequacy of the institutional resources available to them. As a result of this inquiry, Massachusetts has entered upon a program of establishing clinics and a central hospital especially for cancer cases. Twelve permanent clinics are to be established among the large cities of the state and a cancer hospital has been opened, which will admit patients in all stages of the disease, and where payment is not an indispensable condition.

It is interesting and perhaps significant that the Massachusetts program was not initiated by the medical profession or official public health administration of that state. It was brought about by pressure of public opinion acting upon the legislature. The establishment of the New York City Cancer Institute is to be attributed to the Department of Welfare and not to the medical profession, nor to the official public health administration of that city. It is obvious that departments of health must be prepared to do more than they have done to reduce the mortality from cancer.

CONCLUSIONS AND RECOMMENDATIONS

As a result of the study which the committee has made of the cancer problem and what official public health authorities should do about it, the following conclusions and recommendations are made:

1. Official public health administrators should take cognizance of the cancer problem and engage in various activities connected therewith. State health de-

partments and those of large county and municipal units should handle this work in a separate bureau or in an existing bureau as local conditions may indicate. In any case there should be one or more trained members of the department staff devoting all or the major part of their time to the various aspects of this problem.

2. A survey should be made to cover the following points:

a. The number of cancer cases and the death rate from cancer should be determined in the territory under the jurisdiction of the health department making the survey. Comparison should be made between these data and corresponding data from other territories. The morbidity and mortality figures should be subdivided in the usual manner, as by organs, geographical distribution, etc. All data which promise to throw light on the incidence of cancer should be collected from whatever sources may be available, such as the records of hospitals, of nursing organizations and of private physicians.

b. It should be ascertained what facilities are available for diagnosis and treatment. The adequacy of personnel and equipment to meet the needs of those who require this attention should be determined by an investigation covering (1) the general hospitals and special institutions where cancer patients are received, and (2) the hospital provision for advanced and incurable cases. Attention should be given to the provisions made for diagnosis as well as treatment.

c. The cost of the medical treatment which is available should be figured.

d. Determination should be made of the ability of the sick to meet the expense of the skill and care which are required. Studies of the social and economic problems relating to the disease are fundamental to a rational approach to cancer, as well as to all other degenerative diseases. The prevalence of cancer among wage-earners and non-wage-earners, among the non-pay and part-pay groups, should be ascertained in order properly to develop hospital and clinic facilities.

3. Coöperation should be invited from the medical profession and the American Society for the Control of Cancer in regard to a well planned campaign against cancer. The intention of this campaign should be:

a. The employment of preventive measures to the fullest extent.

b. The prompt detection and proper treatment of the greatest possible number of curable cases.

c. The provision of suitable facilities for the care of the incurable patients. Sufficient beds should be provided for both curable and incurable patients in general or special hospitals to meet the requirements.

Departments of health should encourage and assist the establishment of special cancer clinics in connection with general hospitals with the hospital resources in equipment and personnel already available.

In every large center of population there should be one first class cancer center where every modern facility of personnel and apparatus should be available for the diagnosis and treatment of cancer.

A matter to be kept in mind is the possibility of extending visiting nursing service and nursing home service to meet certain aspects of the problem of the care of cancer patients.

4. The public should be instructed in methods of preventing cancer and in the recognition of early signs of cancer and the necessity for seeking competent medical advice immediately upon the appearance of cancer symptoms. The cancer prevention aspects of the health examination should be emphasized. For this, as in all other health education activities, it is desirable for departments of health to have advisory committees of representative lay men and women and physicians.

Such committees already exist in many places, having been established by the American Society for the Control of Cancer. Pamphlets, newspaper articles, moving picture films, lectures, radio talks, and other publicity methods should be employed; they should embody the latest and most authoritative pronouncements on the subject of cancer. Much of this printed material can be obtained from the American Society for the Control of Cancer.

Local cancer educational committees should be developed as offshoots of the state cancer educational committee mentioned above. The fundamental object of these groups should be to develop a local appreciation of the cancer problem and to study methods of meeting it which are sound clinically, socially and economically.

Statistical tables showing the mortality from cancer should be issued, with analyses and interpretations of these tables intended to stimulate interest and to be instructive to the medical profession and the laity.

5. Departments of health should coöperate with state and county medical societies and local branches of the American Society for the Control of Cancer in the education of physicians with respect to the latest and most effective means of diagnosing and treating cancer.

6. Emphasis should be laid upon the necessity of obtaining from the attending physicians fuller and more accurate reports of the deaths which occur from cancer. These reports should state frankly the part of the body affected and such other particulars as may properly be included.

7. In order to reduce uncertainties as to the cause of death as far as practicable, the making of autopsies should be encouraged.

8. Departments of health should provide free laboratory assistance in the making of diagnoses or encourage and assist the development of this service through medical societies, teaching institutions or hospitals. A standard procedure for the transportation of specimens and reports upon them should be employed.

9. Statistical tables showing the mortality from cancer should be issued, with analyses and interpretations of these tables intended to stimulate interest and to be instructive to the medical profession and the laity.

10. Attention should be given to hospitals, sanatoria and institutes alleged to be for the cure of cancer but which are actually fraudulent concerns or undertakings employing methods of treating cancer which are proprietary, misleading and harmful.

GEORGE A. SOPER
GEORGE H. BIGELOW
HENRY F. VAUGHAN

TWO PSYCHIATRIC FELLOWSHIPS OPEN

THE National Committee for Mental Hygiene announces that two fellowships for training in extramural psychiatry at the Institute for Child Guidance in New York City are available for properly qualified candidates. These fellowships have been created by the Commonwealth Fund to provide special training for physicians who have had hospital experience in psychiatry, but who wish to prepare themselves for community work in the fields of child guidance, delinquency, education and dependency.

The fellowships are open to physicians who are (1) under 35 years of age, (2) graduates of Class A medical schools, and (3) who have had at least one year of training in a hospital for mental disease maintaining satisfactory standards of clinical work and instruction.

Inquiries and applications should be addressed to Dr. Frankwood E. Williams, Medical Director, The National Committee for Mental Hygiene, Inc., 370 Seventh Avenue, New York, N. Y.

THE PSYCHOLOGY OF EATING

The Effect of Mind on Metabolism and Its Relation to Autointoxication and Disease

ROBERT E. HUMPHRIES, M.D.
New Jersey Orthopedic Hospital, Orange, N. J.

SINCE the renaissance of medicine following the discoveries of Pasteur and Koch in the middle of the last century, the medical profession has devoted itself to the germ theory, giving very little thought to the habits of the patient. This has led to a lessening of the influence of the medical profession in the country and to the rise of the so-called "cults." The doctor has been too much interested in making an elaborate diagnosis to think very much about what effect this is going to have on his patient.

Very often we find that the patient is suffering from some disease for which we have no cure. It would be unwise to tell the patient that he is incurable, so we tell some member of his family who, of course, does not tell him in words, but he deduces something from their attitude and is affected accordingly. He begins to distrust everyone and we add worry to his already unsettled state of mind; this in turn plays havoc with his general health, cutting down his resistance and shortening his life.

HOPE A VITAL FACTOR

Life is becoming more and more complicated for both patient and doctor, and it is time we gave this some consideration. With our unlimited facilities for the research and study of the habits of man we should be able to tell why the "cults" are successful when we fail. I believe this is easily answered by one word—"hope." "Cults" in their ignorance cannot make a diagnosis and have no tradition to live down; consequently as long as a patient has any money they will hold out hope for his recovery. If they could make a diagnosis they would immediately throw up their hands and say there is no hope, and their influence would end. It seems to me, therefore, that we might hold out a little hope even in the most extreme cases. We certainly would not be injuring anyone by doing this and we would at least eliminate the element of worry which so materially affects our patient.

Give a patient a straw to cling to and one can never tell what the result may be, but if we take this away from him we know at once to what this will lead. It is a well known fact that as soon as the doctor arrives in a home the patient has a new lease of life. If the proper relationship exists between the doctor and the patient, this confidence will continue and the patient will have the very best chance of recovery.

THE GENERAL PRACTITIONER

The general practitioner complains that he has no longer any practice, that his patients are constantly running to some other doctor or to a specialist. This is certainly not the fault of the specialist, but it due to the distrust the general public has for everything. The average man believes very little that he is told.

* Read at the Joint Session of the Health Officers and Food and Drugs Sections of the American Public Health Association at the Fifty-sixth Annual Meeting, at Cincinnati, O., October 20, 1927.

A large per cent of my work is general practice and should be taken care of by the general practitioner—but it is not. The reason for this is obvious. There are very few general practitioners. Everybody treats the symptom from which the patient is suffering and not the patient. People are upset by a multiplicity of names for things. One doctor tells his patient he is suffering from arthritis, another rheumatism; yet another, auto-intoxication, lumbago, etc. By the time a man has seen two or three doctors and has been given two or three different opinions he thinks he has some rare disease and that no one knows the disease from which he is suffering; while in reality every doctor has made the same diagnosis using slightly different words. A little more explanation would solve this entire problem and insure the doctor that his patients would not leave him. He might even call a specialist to confirm his opinion and still control his patient.

INDIGESTION

You will, no doubt, ask what this has to do with environment, and the answer will soon be forthcoming. It has been known for a long time that intestinal toxemia is the cause of a great many of the ills to which man is heir. But what is intestinal toxemia? It is my belief that intestinal toxemia is caused by indigestion and therefore that these two conditions are synonymous. The cause of one is the cause of the other and the relief of one leads to the relief of the other. I say relief because I do not believe indigestion can be cured, as it follows the things we do from day to day. It comes and goes depending largely on what we are doing.

It is impossible to make a study of indigestion on animals because they will not do what man does. Animals will not eat when they are tired or excited; at least with one exception, that is the horse. We know what happens to the horse that eats when he is tired. He either gets acute indigestion and dies, or if the process is not so acute, he gets foundered. Horses are subject to many of the diseases from which man suffers, such as tumors, arthritis, Paget's disease and heaves. They would probably suffer more but horses cost money and consequently are carefuly looked after. Man is not worth much, so is allowed to eat at any time. The cat does not immediately eat a mouse when she catches it but plays with it for time, possibly not to torture it as many people suppose but rather to get itself in proper condition after the tension and excitement of catching the mouse.

Digestion of food depends on the proper function of the digestive apparatus and the digestive apparatus of a tired and excited animal will not function any more than the hands and feet of men will function if overtired. As a matter of fact, you may drive your feet to do things, but you cannot drive the digestive tract to digest food unless it is in fit condition to do the work. If food is placed in the window on a hot summer day it takes a very short time before it begins to putrefy. If placed in the stomach when the stomach is not in fit condition to function, it will also putrefy as the stomach is always as warm as a hot summer day.

Everyone knows that if he eats a meal when he is tired, he has a more or less uncomfortable time for a while. His digestive organs are not in good condition and will not digest the food which has been placed in the stomach. Why then should we put food in the stomach when it will not be digested? Something must happen to this food.

If we are tired, we are very liable to have what is commonly known as ptomaine poisoning with vomiting and diarrhea or we may die immediately from acute indigestion. If we are less tired we have more or less poisoning but not enough to cause the distressing symptoms mentioned above. If we are frightened or worried, much the same thing happens. The food we eat will not digest or not entirely digest; the part which is not digested putrefies and poisons us. This

poison kills off the normal flora of the intestinal tract, causing constipation; part of it is absorbed and slowly poisons the system, affecting different individuals in different ways according to the amount of poison and the metabolism of the patient.

STOMACH AND SMALL INTESTINE AT FAULT

The relief of this condition has been largely devoted to the care of the large intestine, it being considered as a source from which all the trouble came. Very little attention has been given to the stomach or the small intestine. It is my belief that intestinal toxemia is caused by the indigestion of food and that, therefore, the stomach and small intestines are at fault rather than the large intestine.

Food taken into the mouth, masticated, passed on into the stomach and then into the upper intestine, is gradually digested under normal conditions; the digested part of it is removed by osmosis through the intestinal mucosa. The debris which is left is then attacked by the normal flora of the intestinal tract and is passed off by the intestines in a semi-solid state, in much the same way that sewage is disposed of, this semi-solid condition being essential for the normal peristaltic action of the intestine.

If the food putrefies, this poison not only enters the system with the digested food but part of it kills off the normal flora in the intestinal tract or retards their action so that a hard mass instead of a soft mass must be pushed down through the intestinal tract. Many kinds of lubricants are advised to make this easier. Many kinds of cathartics are given to increase the peristaltic action of the intestinal tract. Cultures are fed to the patient to reëstablish normal conditions in the intestinal tract. The cultures are destroyed by the same toxemia that destroyed the culture in the first place. The lubricant acts only as a lubricant. It does not inhibit the absorption of poison from putrefied food. Cathartics remove the debris and may remove some of the poison, but have not destroyed the condition which formed them and, therefore, are of doubtful value. In other words medicine will always fail to cure indigestion unless accompanied by a removal of the causes.

CONSTIPATION

The general public is of the opinion that constipation is the cause of indigestion and consequently whenever they get indigestion or anything they think is indigestion, they immediately dose themselves either with some proprietary medicine, the ingredients of which are cathartic, or take some cathartic to cure the condition. Constipation is not the cause of indigestion, but is caused by indigestion and, therefore, in order to eliminate this condition it is necessary for us to do something for the thing that caused it. In other words, it is essential that the indigestion be treated rather than the constipation.

SPECIAL DIETS

At present special diets are in vogue. Some men advise fruit juices, others advise prepared foods of different kinds, others no meat, no salt, no sugar, etc. Of course, we all know that certain people are affected by certain foods, which poison them, as is evidenced by the rash in certain individuals, following the ingestion of strawberries, or the eating of eggs.

Putrefaction probably takes place more quickly in some foods than in others, but given a normal individual in a perfect environment, I do not believe it makes much difference what food is given to him. That same individual in an abnormal condition will be affected by any kind of food he may eat. Of course, diets are of value as a means of cutting down the amount of food each person puts into his stomach to be digested. Most people eat much more than is necessary and consequently throw a greater strain on their digestive apparatus than is advisable.

Food is seasoned and flavored so that we will be tempted to eat more, and un-

doubtedly eating more has a very great effect on the digestive system. I think people should be advised to eat cautiously and only when they are hungry. Our habit of having three meals a day is a bad one as people are forced to eat when they do not need any food. Feeding children at regular hours is very different from feeding adults at regular hours. When children do not care to eat they should not be fed. They should never be spoon fed under any condition. However, the majority of American parents feel that children must eat in order to grow and in order to keep well. Therefore, if the child's instinct warns him that he should not eat, the parents over-rule this instinct and force him to eat, thus making him sick.

THE CHILD'S ENVIRONMENT

Man to a large extent makes his own environment and lives in it, suffering accordingly. This is not true with a child, however. It must live in the environment made by other people, usually its parents. A tired father or mother attempts to discipline a child when they, themselves, really need disciplining. This discipline usually takes place at meal time, as it is the one time during the day when the family is all together. The child becomes upset; the food is not digested; and in consequence the metabolism is upset.

Children are given food in the form of candy or ice cream at all hours of the day—most of the young children in this country play with lollypops in their mouths, and when meal time comes they do not care to eat for instinct tells them they should not eat. However, their mother is not so easily convinced. She believes that a child must eat in order to grow strong. So she tempts him with special food, and sits down beside him and feeds him herself with a spoon or forces him to eat.

If the child were a dog he would bite her, but the poor child has no say in the matter. When such a child goes to school he is more or less peevish and gets into trouble with his teacher; consequently his entire day may be spent in very unhappy surroundings, and if surroundings are unhappy they certainly will be unhealthy. Therefore, his metabolism will be upset and he will be a prey to disease.

In order to keep a child healthy he must be kept happy; he must not be forced to eat when he does not want to eat; and he must not be allowed to eat unless he is rested. Children worry much more than most people are aware. Some of them have the cares of the universe on their shoulders. As most children live in crowded communities, they must be constantly on their guard against all kinds of things, street cars, automobiles, trains and such things. They have no place to play where they are safe. They are constantly in fear of something, which also upset their digestion and their metabolism. Many of them congregate and play together; this leads to fights which upsets their digestion.

NEW JERSEY PLAN

When a child is admitted to the New Jersey Orthopedic Hospital, he is put to bed in a beautifully decorated room where there is plenty of light and air; he is given something with which to amuse himself; every effort is made to cheer him up as he has just left his parents and is consequently unhappy. If possible, his pain is immediately relieved. Routine examinations are not made until we have gained his confidence. If he is old enough he is tutored and kept up to his grade in school. When not in school he is taught various things to do with his hands, thus keeping his mind occupied.

The younger children are amused and taught to do various things within their capacity. They have music of some form every day. Every bed in the hospital has a radio headpiece within reach; every ward has a Victrola, the piano is played for them and once a week at least they are taught singing. There is a musical program every Sunday afternoon. They

are taken out-of-doors in the sun every day, if possible. Some members of the Board of Trustees visits the hospital each day so that the patient constantly receives the comfort and assurance of the layman as well as that of the physician and nurse.

The nurse who cannot control her patient without fear or friction is immediately removed, as patients, if left alone, usually adjust themselves to their surroundings.

You will see from this that every effort is made to surround the patient with an environment conducive to happiness and contentment. With many of our patients this is all that is necessary to cure them. When a patient is discharged a visiting nurse is sent to the home to instruct the parents as to the proper care which the child should receive.

It is necessary to have the complete coöperation and understanding of the entire personnel of the hospital, as well as that of the parents, to accomplish the results which we desire.

EXERCISE AND HURRY

Exercise in my opinion is very much overdone. Everyone is led to believe at present that he must exercise to keep well and that the more exercise he takes the better he will be. This may be true, but I doubt it. Animals exercise only in pursuit of their food if left to their own sweet will. Would it not be well for us to follow their example?

We do everything in a rush, and brag about it; this undoubtedly leads to many serious mistakes and much ill-health. The average business man is impatient if he cannot put through a deal in a few hours. When he goes to a foreign country to do business he complains that it takes so long to accomplish anything. He might learn something about how to live if he paid a little attention to what other peoples are doing.

Golf is a game, but as it is played by the average man in this country it is changed into work and the benefits which he should derive from it are lost. When a man has to rush his work in order to get in a game of golf, and then swears his way around eighteen holes, upsetting himself mentally as well as physically, he has injured himself rather than benefited himself. If he eats a big meal on top of this he is harmed to a greater extent. Everybody is looking for some new form of excitement to stimulate his jaded nerves, each time breaking down some of the structure which he calls his body. Driving or riding in an automobile is upsetting, especially following meals. Most people contend that they drive very easily and there are no bad effects from it. However, we see many patients who are sick from driving too constantly.

DEBT AND WORRY

Installment buying is another source of trouble which must be faced in this country. A man buys more than he can pay for and then worries about how he is going to meet the payments. He may get injured, in which case his income immediately drops to the amount of compensation he receives. He is then further worried by the regular visits of collectors, and by the time he is well from his injury he is sick from worry.

I take very great exception to the biologists' attitude that we can breed a nation of supermen. It is impossible, in the first place, to decide what characteristics the offspring of any two given people will have, and two apparently healthy individuals may beget children who are unhealthy. If the child is surrounded by the proper environment, free from the care and tribulation of life, the chances are that he will grow up healthy and happy. If he is not surrounded by the proper environment he will grow up more or less sickly, regardless of his stock.

SUMMARY

If you would be healthy and enjoy long life certain rules must be obeyed:

1. Never eat when you are tired.
2. Never eat when you are upset by worry or excitement.

3. Never eat when you are going to do things that are upsetting.

4. Eat sparingly anything you like when you are hungry.

5. Do not think you must have three meals a day.

6. Do not force a child to eat when he does not want food.

7. Keep a child out of excitement as much as possible.

8. Do not scold him at meal time.

9. See to it that he gets plenty of rest.

THE NURSE-MIDWIFE—A PIONEER *

MARY BRECKINRIDGE, R.N.

Director Kentucky Committee for Mothers and Babies, Wendover, Ky.

THE MIDWIFE is not a pioneer, but the nurse as a midwife. The midwife's calling is so ancient that the medical and nursing professions, in even their earliest traditions, are parvenus beside it. Before the pastoral age, in the springtime of the race, there was need for the midwife. As a calling it is more than primaeval; it is primordial. In the continental countries of the Old World where the calling has kept abreast of modern developments, the position of the midwife is dignified and assured, and something of her long descent is kept still in the names by which she is known—"wise woman" and "earth mother."

A NAME IN DISREPUTE

I am not one to quarrel with the good English name of "midwife," fastened on us by centuries of venerable usage. We have allowed the calling to become degraded through ignorance and superstition, and the name suffers unjustly, much as did nursing in the Gamp days before Florence Nightingale. In the late 19th century in England, when midwifery had sunk to as low an ebb as it is with us to-day, a group of English gentlewomen, founded the Midwives' Institute, and started the ball rolling that was to eventuate in a national status under the Central Midwives Board of England, Scotland and Ireland. The word "midwife" there, too, was in such disrepute that Miss Louisa Hubbard once said to Miss Rosalind Paget: "My dear, I wish there was another word for you; it would be so awkward if we used it just when the footman came in to put on the coals."

In the Kentucky Committee we have accepted the term "midwife" and grafted it on that of "nurse." To the people we are serving it is the term in use, and any other, such as "obstetrical nurse," would only confuse them.

THE RURAL MOTHER

In this discussion my point of departure is not going to be the medical profession, greatly as I honor it, or the nursing profession of which I am a member. My point of departure is the rural mother, because once I was a rural mother and I understand her position—that is why I became a midwife, feeling that the midwife only could reach the rural mother's deepest need.

PLACENTA PRAEVIA CASES

This position is not academic or theoretic with those of us who live in the heart of the country districts. In July, one of our prenatals, a woman with six little sons, living on Bad Creek, 32 miles of muleback travel from the railroad, began bleeding slightly. This was reported by the nurse-midwife living in that district to the supervisor and to me.

* Read before the Public Health Nursing Section of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 19, 1927.

Meanwhile she sent a man on horseback over to Bell County for the nearest doctor. He was away on vacation. I might add that the only Leslie County doctor (a very fine one, but only one for 10,000 people in 373 square miles) was also away on holiday. The doctor nearest in Harlan County (another day's ride away) could not come; so we tried a fourth county, Perry, on the opposite end of Leslie from Bad Creek, and one of the Hazard doctors put aside his practice to answer our call. He rode 7 hours on horseback to reach Wendover, our nearest center. There we gave him a fresh horse, some sandwiches and a guide, and he rode through the night 3 hours longer and reached the patient (a placenta praevia) and saved her life.

Ten days later another prenatal in quite another district, on Bull Creek, began bleeding. The nearest doctor this time was the one in Hazard, 24 miles away, on horseback. When we sent him word we thought we had another placenta praevia, and he said: "Good Lord, you are having an epidemic of them," and began riding in our direction. But this mother did not hold out so well as the other. The loss of blood was terrific. She went to pieces, so the nurse-midwife had a neighbor give chloroform, and she went in and got the baby. The mother lived. The doctor wrote me later: "If that nurse had not had the courage to plunge in and take hold, there would have been a dead patient before I got there."

OBSTETRICAL GENIUS REACHES BUT A FRACTION OF MOTHERS

These true stories illustrate why those of us who live in country districts feel as we do. Our point of departure cannot be other than the rural mother herself. And of what avail is it to her that we pile Pelion on Ossa—erect costly buildings in the cities, and perfect the obstetrical genius of a few great men—to reach with super-perfect care a fraction only of our motherhood? These buildings and these men are not used in the training of the only people who can reach the rural mother. That is why our maternal mortality rate is the highest of all according to the Children's Bureau, January 1, 1927. That is why in our history as a nation we have lost more women in childbirth than men in battle. That is why two hundred thousand of our weakest and most defenseless citizens pass annually from one dark cradle to another with hardly a gap between.

It is not the big things we are doing, but how many mothers we are saving, that matters. It is as though in war we expected ten thousand wounded, and arranged our resources so as to give perfect care to three thousand and no care at all to seven thousand, leaving them on the battlefield just as they fell, to die or to creep home mutilated and unbefriended.

THE YOUNG WOMAN'S BATTLE

Maternity is the young woman's battlefield. It is more dangerous, more painful, more mutilating than war, and as inexorable as all the laws of God. There is no escaping it. But for her there will be no drums beating or trumpets blaring. Off on the lonely farmstead where the true heart of America is beating—for always in its peasant population lies a nation's true heart—the young mother is facing her agony and danger that the hope of America may come into life. It is not what we are doing in cities that counts for her, but the service actually available way off there.

Every day and night at our four centers of the Kentucky Committee in the two hundred square miles, which is all the country our service covers as yet, we have expectant mothers registered. Any hour may come the call: "Hey, woman, my woman is needing you," and the nurse-midwife of the Kentucky Committee gets her lantern and rides off to the little home on the creek bed, where life is struggling to enter and threatening its toll of life. By the bedside of the mother who needs us—that is where our work must be done. Only there will the death rate be cut down.

Who is taking care of Alabam Sizemore on Hurricane Creek to-night when her baby is born? On that answer, and only on that answer, hang the vital statistics of America at their most vulnerable point.

STATE SUPERVISION OF OBSTETRICS

What have those fifteen other nations with lower maternal death rates than ours in common that we lack? No better medical or nursing services, if as good, in the great centers of civilization! But they have each and all one thing which we are missing altogether, and that is skilled midwifery, trained in the obstetrical centers and supervised by the state, for each peasant mother in Highlands and Alps, Tyrol and Apennines. May not the conjunction be more than haphazard? Those of us who have supported the venture of the Kentucky Committee stake our all on that throw.

COMBINING NURSING AND MIDWIFERY

A word as to our methods. We think the Anglo-Saxon plan of combining nursing and midwifery in country districts fits better into our American tradition than the continental system of specialization. It is economically more feasible in rural work. The famous Queen's Nurses of Great Britain, under the generalized system, have year after year a maternal death rate half that of the national, and one-fourth that of ours in the United States.* Their midwifery service cares for some forty to fifty thousand women annually in England alone.

HEBRIDES PLAN A GUIDE

We have arrived at our plan of organization in Eastern Kentucky after a study in the Hebrides of the plan followed by the Scotch Highlands and Islands Crown Commission, of which Sir Leslie McKenzie is chief.

Each of our nurse-midwives lives at a center† in the heart of her district of not more than a radius of 5 miles, which is about 78 square miles. Each such district has its own local district committee, with chairman and secretary, which meets monthly at the center to get the nurse's report and advise with her. In every county, however isolated, there are to be found leading citizens capable of directing affairs. Those of Leslie County are on our local committees, and words fail to express our gratitude to them for a coöperation which has made our work possible.

CHARGES

In fees we again follow the Scotch Highland system of making a yearly charge of $1.00 which covers all services but midwifery. Where this has not been paid, 25 cents is charged for a nursing visit. Five dollars is our midwifery fee and we will take produce in payment, such as hay and fodder for our horses, or the husband's labor. For this fee we give prenatal care (the earliest possible), delivery service, and full postpartum nursing for 10 days. In the case of the two placenta praevia cases, we specialed both patients day and night from the time bleeding began until delivery. Otherwise both patients would have died.

The midwife never leaves her patient once she is in labor, staying 2 days and nights in the home if need be. We think the support and help given through the long hours of the first stage has a bearing on the outcome. Because we have been trained in midwifery, we are able to see the normal cases through and also to recognize the abnormal and get medical aid at any cost, from any distance, when it must be had, carrying on with courage until it comes.

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* I refer those interested to an article in the *British Medical Journal* of January 8, 1927: Observations on the Maternal Mortality in the Midwifery Service of the Queen Victoria's Jubilee Institute, by John S. Fairbairn, M.A., B.M., B.Ch.Oxon., F.R.C.P., F.R.C.S., obstetric physician to St. Thomas's Hospital.

† These centers to date are the gifts of Mrs. Nathaniel Ayer of Boston in memory of her Kentucky mother, Jessie Preston Draper; Mrs. Chester Bolton of Cleveland; Mrs. Henry Ford of Dearborn; Mrs. Thruston Ballard of Louisville in memory of her daughter, Mrs. David Morton; and Mrs. Mary Parker Gill's Estate of Louisville, though the United States Trust Company; and my own home, Wendover.

MANY GIVE THEIR SERVICES

In our general policies and finances we are guided by a state committee, which is a sort of a Who's Who in Kentucky, of leaders in professional and social and educational life. The metropolitan physicians and surgeons in our group, and many others beside these, have given their services for special cases of all kinds which we have carried down to them out of the mountains. Several doctors have come up to us and held clinics, again giving their services. The Louisville and Nashville Railroad, most public spirited of corporations, issues passes for all indigent cases and their nurses. From the State Board of Health, whose chief, Arthur T. McCormack, M.D., has been our big friend from the beginning, we receive our licenses to practice midwifery and more kindness and help than we can ever repay.

TRAINING FOR NURSES

Our nurses are all required to pass the English, Scotch or Irish Central Midwives Board examination in midwifery, with its prerequisite in training, to qualify on our staff. Several American nurses have done this and we have also English nurses. This gets our demonstration under way. Similar training must, however, be provided in this country to nurses as midwives, or to midwives as such, before the need of Alabam Sizemore is met on every Hurricane Creek.

Our nurses are either trained or experienced in public health before coming to us.

At the request of the State Board of Health we give typhoid vaccine and toxin-antitoxin. Such has been the response that typhoid and diphtheria (that most terrible scourge of isolated children) have been almost wiped out of the districts we cover. We have given thousands of inoculations in the two years of our existence. In one district alone we gave over five hundred in a month. One nurse has given as many as 140 in a single morning.

BEDSIDE NURSING THE ENTREE

We believe the reason our preventive work has been so successfully received is because we also give bedside nursing care, with emphasis of course on its teaching values. To illustrate, nearly a year ago we opened up a new area where no modern work had ever been done before, not even from a mission station. We formed our district committee of leading citizens and planted two nurse-midwives there with horses and saddle bags, and began.

Only two or three people came to the first health clinics. Then there came an epidemic of influenza with some pneumonia. We nursed the sick—only that—but it was good nursing and they all got well, even the desperately ill pneumonias. Then they began coming to the clinics, seventy and eighty strong.

All the arms in that area are shot up with vaccines; and we have separate baby beds, and screened houses, and our chairman making public addresses for sanitary toilets and advising hookworm treatment, and many other activities. We believe in bedside nursing. We think it humane, and then, too, in public health it is an open sesame.

All summer the babies in Leslie County are ill with "summer complaint" from dirty water and milk and flies and fried food. We nurse them; we go endlessly to sponge them and give high saline. Now, many homes are screened, also the cribs; and wells are chlorinated; and potatoes and eggs are baked and boiled.

EDUCATION THROUGH THE CHILD

The Sadhu Sundar Singh tells how in the Himalayas he met a man trying to drive a cow and calf over the river, but they would not be driven. Then he tried coaxing with hay, but to no purpose. The Sadhu said to him: "Take up the calf in your arms and carry it and the mother will follow"—which was done. When we have restored a baby, we hold its mother forever after in the hollow of our hands.

The object of what we are doing is to get light. In Kentucky we have a race horse named "Fair Play." That is the spirit which we invoke in those who differ from us as to methods, and we ask them to remember, as William James reminds us, that it is by our fruits we are to be judged, and not by our roots.

Here we all are, we puny human beings "with our weak endeavors after good" rushing through space together on this one little planet, each of us with a wish to help a bit in our generation, as we can. We have in common all the things that are bigger than ourselves. The largest telescopes through photographic plates, after several hours exposure, take an impression of distances beyond any the eye can reach. It is estimated that the farthest nebula in the heavens which may be photographed is so distant that the light has taken a hundred and forty million years to reach us. We of the Kentucky Committee have hitched our wagons to these stars, believing that "whatever doth make manifest is light."

DRAMATIZING THE DAY'S WORK

THE short story contest carried on by *The Public Health Nurse*, the official magazine of the National Organization for Public Health Nursing, closed October 15 with a total of 136 stories submitted. The stories are now in the hands of the judges, who are: Haven Emerson, Edna Foley, Julia Lathrop, Florence Patterson, James Rorty and Elizabeth Fox. In proposing the short story contest the Publications Committee hoped to insinuate the idea that it is really worth while occasionally to transcribe some experience or incident so that others may become aware of the adventure, the thrill, and the intimate comradeship that may at any moment bring into a day's routine a glow that gives a new impetus to living.

In the *Red Cross Courier* appear these remarks from one of the judges. "We anticipated a somewhat tedious task. On receipt of a large packet of manscripts from the New York office we closeted ourselves one Sunday to read them and make a preliminary selection. Late in the afternoon, brushing a tear away, we laid the last manuscript on several others marked 'first choice,' feeling that the Sabbath had brought us rare spiritual refreshment, so deeply and repeatedly had we been moved both to pity and mirth. Sitting for a while in reverie, as the dusk gathered, we had a feeling of profound thanksgiving. Thanksgiving that in a world so full of ignorance, distress and despair, nurses have it in their power to make life easier and brighter and that so many are using this power with gentleness, kindness and a deep sense of *noblesse oblige*. We rejoiced that the high praise bestowed on public health nursing is often so justly earned by the strength, the wisdom, the understanding sympathy of many nurses. We were glad that so many perceive the true inward beauty of people outwardly commonplace and find so much of significance in their work besides its routine and that they are gaining the faculty of giving expression to their sensitive perceptions. We were grateful that we had chosen so beautiful and gracious a calling as nursing for our life work and yearned to close our desk, to don the old grey uniform and go forth again with bag in hand.—*Public Health Nurse*, Nov., 1927, p. 531.

THE PREPARATION OF ANNUAL HEALTH REPORTS *

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AND

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STATE AND MUNICIPAL governments have long been accustomed to provide in their tax levies for the conduct of activities which were believed conducive to better living conditions and the promotion of the health of the people.

The money needed for health activities at one time was appropriated by legislatures or city councils. An order was drawn on the treasurer for the sums needed out of any "unexpended balance in the Treasury." The forward steps taken in recent years by state and municipal governments have led to the adoption of the Budget System. This has developed a more business-like management of departments, especially for the provision of health work. A department of health, therefore, having been provided with a fixed sum of money to promote the health of the people during the following year, ought to prepare at the end of that year a statement of its activities, the amount of money expended for each type of activity, and the probable result. Such a statement or report is not only for the instruction of the legislators and higher officials, but also for those who are employed in health work elsewhere and the citizens in general, who might be interested in the fate of the tax-dollar and the returns that are made by its expenditure.

The statement may be frequently made and accepted that such reports are seldom read, at all events seriously, except possibly by a few health officials. This is no reason, however, for not carefully recording our activities and their apparent results. On the contrary, there are at least three good reasons for full and correct reports:

First: As our people become better educated in self government, they insist more and more that there shall be fewer and fewer mutations in office.

Second: Those who assume the duties of a director of health activities will find useful the records of their predecessors which may show successes and failures and the probable reasons therefor.

Third: If a full report is expected and demanded of health workers, there is offered a strong stimulus to the responsible head and his assistants to put forward their best efforts throughout the year to show their value in their several positions in preserving and promoting the health of the public. A healthy rivalry is also produced among the several subdivisions of a health department to make a good showing in the permanent publication.

* Report of the Sub-Committee on Standard Health Department Reports (C. Hampson Jones, M.D., *Chairman*), approved by the Committee on Administrative Practice, September 23, 1927. Presented to the Health Officers Section of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 17, 1927.

RESULTS OBTAINED THROUGH EDUCATION

The success of health activities results not only from studies of officials and their assistants but also from the education of the public. This education is obtained either through personal experiences or through the experiences of others. The work of education in our public and parochial schools regarding the promotion of health, for example, will produce a better informed citizenry and one sensitized to suggestions as to methods of prevention that may from time to time be given by health officials. This education may be promoted by monthly bulletins distributed among the teachers for use with the children; but a more permanent record is provided through an annual publication, for distribution among various important groups of the community, locally and elsewhere, which may also note the results of such teaching.

FORM AND CONTENT

What then should be published in Annual Reports in order to meet the varied demands or needs of this hoped-for reading and somewhat critical group?

In the first place it must be realized that the number of activities will vary according to local conditions, and whether the community is urban or rural. Every activity should be set forth clearly, as to the amount and character of the work performed, and the number of persons required to do such work. There is probably in every community some one person, or group of persons who for one reason or another, is antagonistic to all or some part of health work. This makes it especially important that the work performed in every activity be critically examined to make clear the needs for a proper performance.

Whenever a new activity is undertaken, the Annual Report for that year should contain a clear statement of the reasons for the undertaking. This may show, for example, that it was or is impracticable to accomplish the same result by extending the work of another division, although such a procedure might avoid an increase in what might be rightly termed the overhead charges.

The director of health or other person in authority should, in each Annual Report, point out the failures and successes in health work and give, if possible, his opinions therefor. He should direct the minds of his readers more especially to new fields of work, or to enlargement of old ones, to the end that the three objectives of health work may be obtained:

Lessened morbidity rate
Lessened mortality rate
Increased physical and mental efficiency of the citizens

SUGGESTED OUTLINE

While there are published annually several valuable health reports, there still seems to be room for improvement. An outline has been prepared in order to present a few specific suggestions for consideration regarding form and subject content. It is proposed in a later report to suggest somewhat detailed forms of statistical tables and forms for presentation of other pertinent data. It is not in the minds of the writers to attempt to standardize annual reports. It is believed, however, that a certain amount of uniformity of outline is desirable, and that there are certain important facts which every report should contain. It is hoped that the following outline may prove useful in whole or in adapted form to those who are annually called upon to prepare health reports.

OUTLINE FOR HEALTH DEPARTMENT REPORTS

I. Groups to be reached:

1. Official bodies, such as
   - Chief executive
   - Appropriating body
   - Board of Health or Public Health Council
2. Other public health workers
   - Local and other
3. The general public, through
   - Newspapers
   - Libraries
   - Other channels

II. Major functions:

1. Summarize chief activities of year
2. Provide permanent record of health department activities
3. Make recommendations for development of program
4. Give a brief account of money expended (See III, 5, a.)
5. Present pertinent statistical data concerning work
6. Serve as a medium of exchange of ideas between health organizations

III. Important features:

A. Contents:

1. Table of contents at the front
2. An organization chart of the department
3. Executive officers' brief outline of outstanding features of the year's work, new projects or methods developed, trends of disease incidence, population statement, outstanding vital statistics, new legislation of ordinances, major accomplishments, and recommendations and plans for future
4. Brief summary of chief activities. (In larger organizations, this will consist of a carefully prepared summary of the work of each bureau or division.) Descriptive text should accompany summary statistical tables. Comparisons, with records of previous years may be interesting.
5. Statistical tables:
   a. Classified financial statement, total and per capita
   b. Morbidity tables
   c. Mortality tables. (International List may be abbreviated in small cities.)
6. Alphabetical index at the back, especially in reports of 50 pages or over

B. Mechanics:

7. An arrangement for publication within six months after close of fiscal (preferably calendar) year
8. An attractive but conservative cover
9. Good paper, adapted to character of report
10. Good printing, readable type
11. Carefully read proof
12. Carefully selected and effective illustrations, photographs, charts, etc.
13. A satisfactory method of distribution without rolling or folding

NOTE: It is essential to secure a good printer. If funds are inadequate for a good printed report, consideration may be given to the use of multigraph, mimeograph, or zincograph devices. The best reports show individuality.

SUGGESTED FORM OF FINANCIAL STATEMENT*

(City of 100,000 Population)

For the year ending December 31, 1927

Receipts	Total	Cents per capita
1. Appropriations, salaries	$171,190	171.2
2. Other expenses	25,000	25.0
3. Nursing fees	15,210	15.2
4. Communicable disease hospital	20,000	20.0
5. Miscellaneous receipts	900	00.9
	$232,300	232.3

Expenditures	Salaries	Maintenance	Total	Cents per capita
1. Administration				
A. Administration	$11,000	$2,500	$13,500	13.5
B. Public Health Education	2,200	2,000	4,200	4.2
2. Vital Statistics	4,000	500	4,500	4.5
3. Communicable Disease Control				
A. Epidemiology	6,800	2,000	8,800	8.8
B. Tuberculosis	6,400	1,500	7,900	7.9
C. Venereal Diseases	6,400	2,500	8,900	8.9
4. Child Hygiene				
A. Maternity, Infant and Preschool Hygiene	9,000	1,500	10,500	10.5
B. School Hygiene	20,500	2,000	22,500	22.5

* Figures from Summary Budget Revised Plan of Health Organization for City of 100,000 Population. *Community Health Organization*, A.P.H.A., 1927.

Expenditures	Salaries	Maintenance	Total	Cents per capita
5. Public Health Nursing	93,400	8,000	101,400	101.4
6. Sanitation	8,500	1,000	9,500	9.5
7. Foods				
A. Milk	4,500	1,000	5,500	5.5
B. Other Foods	4,500	600	5,100	5.1
8. Laboratories	8,000	2,000	10,000	10.0
9. Communicable Disease Hospital			20,000	20.0
Grand Total	$205,200	$27,100	$232,300	232.3

NOTE: This Report was prepared with the coöperation of W. F. Walker, Dr.P.H. and W. T. Fales, Dr.Sc. (See also *A.J.P.H.*, 3:595 (June), 1913 and *A.J.P.H.*, 17:963 (Nov.), 1925.)

SCREENING AND THE MISSISSIPPI FLOOD

IN the rehabilitation of the flooded areas of the South it was early apparent that the rapid recovery of those peoples in the inundated areas depended absolutely on getting a fairly good crop out this fall.

The most serious obstacle to getting a good crop was the potential probability of immense epidemics of malaria developing about crop gathering time as a result of the thousands of acres of new breeding areas for the Anopheles mosquito.

Sanitary engineers assigned to prevent just this fiasco—of good crops but no one to gather them—saw the futility of attempting to control or prevent mosquito breeding, and realized that quininization on so large a scale would be highly impractical. They therefore suggested to the Red Cross that a barrier in the form of adequate screening be put between the known malaria carriers and the mosquitoes to break the cycle of malaria. Further investigation showed that the U. S. Public Health Service had developed a cheap, simple and efficient screen door for plantation homes and as three-quarters of the problem of screening is one of making doors, the plan was made to adequately screen with this type of screening as many carrier homes as funds would allow.

The Red Cross financed this work and the Sanitary Engineers of the U. S. Public Health Service and the state boards of health supervised the field operations. By the time that necessary red tape was cut and appropriations made available, only a possible 10 weeks remained before the usual peak of the malaria season. Individual measurements for the homes had to be made, the homes actually selected by the health departments, contracts for materials placed, labor forces recruited, factories for the manufacture of screen doors established, and arrangements for the installation at the homes made. In spite of the lateness of the start, in spite of the protests of persons who were supposed to know and said that the thing could not be done, the thing was done and 24,000 screen doors were made and 8,000 malarious families' homes carefully screened, as a protection to the communities. This work was carried on in the flooded areas of four states: Arkansas, Mississippi, Tennessee and Louisiana. Wherever it has been possible to grow a crop in the flooded areas fairly good ones have been or are being harvested, and while malaria is present as always, there has been no increase in the flooded areas over that of the other parts of the South and no serious epidemics of great importance have occurred. The sanitarians engaged in this work can feel justly proud of the somewhat pioneer work which has been done this past summer.

Calamities do not as a rule occur without some benefits or, as we may say, some redeeming feature. Less than 5 per cent of the rural families of the South are living behind screens and as a result of the flood if screening becomes more prevalent in the country districts a decided step forward in living conditions and in disease prevention will have been accomplished.

As a result of the screen work it has been shown that the annual cost of screening the home is less than the cost of mosquito bars usually purchased by the family, and an opportunity has therefore been created in an almost untouched field for the merchant, health worker, and manufacturer, which can be made to react to the personal gain of each.—H. A. Johnson, U. S. Public Health Service.

EDITORIAL SECTION

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

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OUR FIFTY-SIXTH ANNUAL MEETING

FOR OUR 1927 meeting we returned to Cincinnati where the first scientific meeting of the Association was held. Had any of those pioneers who met in Cincinnati in the early days been able to come to this meeting they would scarcely have recognized the great city which Cincinnati now is. We hope, however, that their spirits are able to see that those of us who have come after are carrying on the great work which they began.

The scientific program was the most extensive and one of the best which has ever been presented in this or any other country. The number of sections has grown so large that we now afford an opportunity to public health workers in every line to meet and discuss the particular problems in which they are concerned. Indeed so many valuable papers are presented to the various sections at the same time, but in different meeting rooms, that it is impossible for one to hear all in which one is interested or needs in his work. However, this is erring on the right side, and while we recognize some difficulties in the situation, we hope for extension rather than curtailment as time goes on.

From a list of topics of such great interest it is hard to single out those of the greatest importance, so it will not be attempted. A review of titles presented indicates a very strong tendency toward the study of foods in their relation to the building up of the body as well as their possible danger as carriers of infection. An entire session was given to food poisoning, another to nutrition in which a special emphasis was laid upon vitamins and their relation to food values. In connection with this subject, as in others, our session attracted an unusual number of prominent men and women who have done notable work along these lines. In addition, there were papers on child hygiene and health education which directly and indirectly considered the question of nutrition.

Milk, a topic of perennial interest, received much attention in several sections. The section on Public Health Engineering discussed requirements for the pasteurization plants and the washing of milk bottles, while the Laboratory Section took forward steps in relation to the proper temperature for pasteurization, the question of the holding time being left to the engineers for further study. A special session was given to the discussion of milk problems in large cities.

The recent discovery that the bacillus of Malta fever, with its closely related type, the *Bacillus abortus*, is quite widely distributed throughout our country, furnished one of the most interesting topics

for discussion. In certain states 90 per cent of the milk producing herds are said to be infected. If it is finally shown that the type found in cattle can be conveyed to man through milk with any degree of frequency, steps must be taken to protect the public from this newly discovered danger. It will add another reason for insisting upon the pasteurization of ordinary market milk.

One of the latest entrants in the field of public health is cancer control. Last year a committee was appointed by the Health Officers Section to draft a plan for the control of this disease which is steadily becoming more prevalent. This report was presented, and has been adopted by the Governing Council of the Association. It proposes a combination of public health officers, physicians and those societies especially devoted to the control of cancer, to carry the message to the public, to make a survey of the situation, and to adopt means for early diagnosis and control. No single subject of greater importance was considered.

The exhibits were excellent, extensive, and admirably arranged. We must especially commend those demonstrating the methods of public health administration to which various health departments and health organizations contributed. The interest of certain life insurance companies was evident, and one of the most attractive exhibits was made possible through the liberality of the John Hancock Mutual Life Insurance Company.

The attendance was good, although not quite as large as at the Cleveland meeting. It was a great pleasure to all to see Dr. Peter Bryce, one of our oldest ex-presidents, who has for several years been unable to attend. The Local Committee made excellent arrangements and provided for the entertainment of guests on a liberal scale. The most notable single feature was a dinner given by the Ohio Society of Sanitarians to the Association, which was largely attended.

Chicago was selected as the place of meeting for 1928.

OPEN SEASON FOR TULAREMIA

THE "open season" for rabbits, and consequently for tularemia begins each year with November and continues through December and January. Relaxation of the game laws fills the markets with wild rabbits, 10 per cent of which, according to Francis,[1] are infected with tularemia. This is a fatal bacteremia which is readily transmitted to man through wounds of his skin, through his conjunctiva, by tick bite or fly bite. A persistent ulcer at the site of infection, swelling of the regional lymph nodes, fever, slow convalescence and late suppuration of lymph glands contribute to a serious disablement which may last for months and which, in 17 of 407 reported cases, resulted in death.

Human cases of tularemia have been recognized in 37 states, in the District of Columbia, and in Japan. Discovered in the California ground squirrels in 1910 by McCoy, of the Public Health Service, this disease of rodents and man became engrafted into the jack rabbits of the West and has advanced steadily across the continent, appearing in state after state, until there remains only a block of nine uninvaded states—the six New England States, New York, New Jersey and Delaware.

Any occupation in which rabbits are skinned, dressed or cut up may convey the infection. Ticks and flies found on horses, cows and sheep can also carry it. Laboratory infections have occurred in those handling infected guinea pigs, rabbits or white mice, dead or alive, and infected live ticks. In the West the infection is conveyed from wild rabbits to man by the bite of wood ticks (*Dermacentor andersoni*). In the South, a number

of cases have been due to the bite of ticks of an undetermined species. In Utah and neighboring states the bite of the horse-fly (*Chrysops discalis*) has frequently conveyed the infection. Other cases have occurred from the bite of the hog, squirrel and coyote, presumably contaminated by eating diseased rabbits.

Those handling infected animals, ticks or flies should wear rubber gloves. The causative germ does not form spores and is killed at a temperature of 133° F. Rabbits should be thoroughly cooked before eating. Carbolic acid, formalin, corrosive sublimate and other common disfectants are effective. One attack protects from another. Immune persons should if possible be employed to dress rabbits and to handle infected laboratory animals.

Prevention by inspection is impracticable, since the lesions to be looked for occur on the liver and spleen and these organs are found in only about 10 per cent of dressed rabbits in the market. Many rabbits are put in cold storage. Even when frozen, diseased rabbits remain infective for three weeks, but are safe after four weeks.

East of the Mississippi River rabbits are protected for nine months of the year, November, December and January being open, so that cases are most likely to occur during these months.

Rabbits which are easily caught or killed are more apt to be sick than those which are lively and better able to take care of themselves. The eradication of ticks, fleas and rabbits is practically impossible. Rabbits will not die out on account of the disease. Ticks remain infected for life and are able to transmit the infection through their eggs to the next generation. No preventive vaccine nor curative serum has been perfected and no drug has any special value.

REFERENCE

1. Francis, Edward. Tularemia in the Washington, D. C., Market. *Pub. Health Rep.*, 38:1391–1396 (June 22), 1923.

WHEN IS A MAN DRUNK?

THE GREAT increase in the number of motor cars and of accidents due to careless driving has made this question of increasingly greater importance, since a fair proportion of accidents are due to the effects of alcohol, and the authorities must decide as to whether or not the driver was drunk. Since medical testimony is frequently sought, the doctor is necessarily interested. Certainly a drunken man has no business driving a car at high speed on a crowded highway. There is nothing which more clearly demands an alert mentality with coördination of the muscles. Decisions must be arrived at quickly and accurately. Alcohol paralyzes the higher brain centers first, and impairs judgment.

Many states and cities have passed laws penalizing severely the drunken driver. The penalties vary greatly. In Denmark a convicted drunken driver forfeits his license for life, and the very severity of the penalty is apt to defeat its object in many cases. In England the matter has become so important that the British Medical Association in 1925 appointed a committee to study the tests employed for drunkenness and to recommend modifications or improvements. This committee made an extensive inquiry into the regulations of a number of countries as well as the practices in vogue in England.[1]

There seems to be no standard for determining what is meant by being drunk, but in the cases under consideration it may be accepted that the general meaning of drunkenness is "a condition in which the individual is so affected by alcohol that his judgment as a driver has become impaired." In the discussions, those cases in which, owing to some disease or nervous affection, the indi-

vidual is especially susceptible to the effect of alcohol have been considered, but legally and practically these need not come into consideration, since the condition of the individual and not the amount of alcohol which he has taken is the important point. It must be remembered that the temperament of the individual and the surrounding conditions at the time of taking the alcohol have considerable influence in determining the effect. None of the usual tests are conclusive and the judgment of the witnesses, whether medical or otherwise, is generally open to question.

There is little difficulty in determining whether or not a man is thoroughly drunk, but some of the most dangerous drivers are those who are far from being inebriated in the ordinary sense of the term. Many are young men who have had only a moderate amount of alcohol, which combined with good fellowship and pleasant surroundings, have served to stimulate them. These men may show an exuberance of spirit which makes them drive recklessly and assume risks they would avoid under ordinary circumstances.

These considerations give especial interest to a paper[2] proposing the concentration of alcohol in the urine as a test of intoxication. After a number of experiments on men who had taken various amounts of alcohol Drs. Southgate and Carter believe that this furnishes a fairly accurate method of determining the amount of alcohol which has been ingested. It is held that the renal epithelium has a selective action for alcohol in secretion. The concentration of alcohol in the urine is held to give a fair index of the amount of alcohol which has been ingested, as well as the time within which the bulk of it has been consumed. A sample of only thirty drops is sufficient for the determination.

While the work seems unquestionably to mark a step forward, it is open to criticism and will certainly give misleading results in some cases. Since individuals react so differently to the same amounts of alcohol, even if it is possible to determine accurately the amount consumed and the time within which it has been consumed, it will not serve to prove whether or not the individual was drunk in the legal sense of the term.

The whole subject is full of interest for practically all nations, and especially for us in America, since we already have a greater number of motors per capita than any other country with no sign of having reached the saturation point. Even prohibition has not solved this problem for us.

REFERENCES

1. *Brit. M. J.* (Supplement), Feb. 19, 1927.
2. *Brit. M. J.*, Aug. 27, 1927.

ASSOCIATION NEWS

AT the meeting of the Governing Council the following officers for 1927–1928 were elected:

President, HERMAN N. BUNDESEN, M.D., Commissioner of Health, Chicago, Ill.

First Vice-President, GEORGE W. FULLER, Consultant Sanitary Engineer, New York City.

Second Vice-President, W. H. PETERS, M.D., Health Commissioner, Cincinnati, O.

Third Vice-President, JAMES ROBERTS, M.D., Health Officer, Hamilton, Ont.

Treasurer (reëlected), LOUIS I. DUBLIN, PH.D., Statistician, Metropolitan Life Insurance Company, New York City.

HOMER N. CALVER has been reappointed Executive Secretary.

RÉSUMÉ OF ANNUAL MEETING

Charles Value Chapin, M.D., retiring President of the Association, told the members that there remains much in the field of research and preventive medicine for them to do to-day, and that what is not known about maintaining and perfecting the health of mankind is far greater than what is known (see page 1109).

The special Committee on the Control of Cancer, which presented its report to the Governing Council, was asked to serve for another year in order to follow up the recommendations of their report, which was accepted. The committee recommends that the departments of health not only take official cognizance of the cancer situation but also carry out active work to combat it.

"What Can We Do about Measles," by George C. Ruhland, M.D., and A. Clement Silverman, accentuated the 3-year age period as the one showing the highest mortality from measles. Susceptibles of this age should be separated from those having the disease. Health officers should emphasize the use of an immune serum for prevention and treatment.

In the paper on "Administrative Control of Communicable Diseases," by Clarence L. Scamman, M.D., and in the discussion which followed, it was claimed that epidemiologists are giving less attention to the environment and more to the infected individual.

Kenneth Maxcy, M.D., of the U. S. Public Health Service, presented the story of typhus fever throughout the southern states.

An innovation in the scientific program was the trial session on Epidemiology which attracted one of the largest audiences of the whole conference. It brought together laboratory workers, vital statisticians, health officers, and child hygienists. The two striking contributions were, "An Epidemiological Study of Undulant Fever in Michigan," by Paul F. Orr, M.D., and "The Age Distribution of Communicable Diseases According to Size of Community," by Edward S. Godfrey, Jr., M.D. Dr. Orr stated that undulant fever has been proved beyond doubt to come from unpasteurized cow's milk. His paper is a report of sixteen cases of undulant fever which were personally investigated by the author during the past fifteen months. Dr. Godfrey's paper proves that practically all the communicable diseases show a higher fatality ratio in the large cities than in the villages and small cities because a higher percentage of cases occur in children under 5 years of age. In these, diseases are most fatal. On the other hand, the truly rural sections show a higher case fatality rate than the small villages due in all probability to less medical attendance, less adequate nursing care, and, to some extent, the higher percentage of cases in adult life. Typhoid fever is most prevalent in the cities and villages of 5,000 to 25,000 population and is least prevalent in the villages of less than 2,500.

Emery R. Hayhurst, M.D. presented a study of pneumococcus infections as they are influenced by breathing gas combustions.

Wade Wright, M.D. urged that sanitarians put forth every effort to bring into industry the application of uniform practice in reporting sicknesses. He also recommended that we replace with acceptable terms the eccentric re-

ports so common in dealing with the industrial hazards of wage earners.

A. J. Carlson, M.D. gave a paper on "Food, Metabolism and Disease" in which he held that we are probably running too much to fads and holding to views which are more positive than justified. He pointed out that the many careful studies which are in progress at the present time throughout the world are making it necessary to revise our teaching at quite frequent intervals.

The Committee on Administrative Practice presented for formal consideration the Appraisal Form on Rural Health Work for experimental use by county health officers, the Report on Record Forms for Public Health Work, and an outline for a style of annual report (see page 1152).

Louis I. Dublin, Ph.D., in his paper on "Extension of Registration Area," expressed the belief that 1928 will see a satisfactory registration of births and deaths from all states in the Union.

Again this year, the session on "Milk" made valuable contributions to public health. One of the outstanding papers was that by William H. Park, M.D. on "Thermal Death Point of Streptococci."

The Committee on Milk Products is considering a very thoroughly worked out milk code made under the auspices of the U. S. Public Health Service which is being submitted to them for careful consideration and criticism. The report of the committee will not be ready for presentation for several months.

The question "Has Prohibition Promoted the Public Health" was discussed by Louis I. Dublin, Ph.D., and Haven Emerson, M.D., from a purely scientific viewpoint.

The public health nurses gained much valuable information from the excellent paper prepared by Mrs. Mabel C. DeBonneval and Miss Marguerite A. Wales. They analyzed the cost of nursing work with the greatest accuracy in detail. In addition to this the nurses learned of the development of the Kentucky Committee for Mothers and Babies.

In the Child Hygiene Section Frances Hollingshead, M.D. gave a most complete résumé of the Present Status of Pre-School Hygiene in the United States. Dr. Hollingshead's paper will make a valuable addition to the reference shelves of the preschool child specialists.

Lee K. Frankel, Ph.D. contributed many valuable facts on maternal and infant hygiene. He strongly advocated the coöperation of all public health workers, medical and nursing professions, in a nation-wide effort to provide better and more maternal care.

That a mental hygiene program should be inaugurated by every public health officer was emphasized by LeRoy M. A. Maeder, M.D.

Demonstrations showing the practical application of health teaching were given under the direction of the Public Health Education and the Child Hygiene Sections, with the coöperation of the National Dairy Council. A staff of the National Dairy Council directed a health circus, a fashion panorama and other pleasing health education demonstrations.

The full text of the resolutions passed by the Governing Council will be found on page 1162 of this issue.

FUTURE MEETING PLACES

At a meeting of the Governing Council it was voted that future Annual Meetings be held in rotation in different parts of the continent. Seven districts were decided upon: Northeast, Southeast, Great Lakes, Central, Southwest, Northwest, Midwest.

NEW OFFICERS FOR DELTA OMEGA

New officers for Delta Omega, the honorary public health fraternity, were elected at a dinner held October 19 in Cincinnati, as follows: President, C.-E. A. Winslow, Dr.P.H., of Yale; Vice-President, Major Edgar E. Hume, M.D., Dr.P.H., of Johns Hopkins, and Secretary, James A. Tobey, Dr.P.H., of Massachusetts Institute of Technology.

A new Constitution was adopted and plans made for future activities.

The Fifty-seventh Annual Meeting will be held in Chicago in 1928.

RESOLUTIONS

Presented by the Committee on Resolutions, Edwin O. Jordan, Chairman, and adopted by the American Public Health Association at the Fifty-sixth Annual Meeting, Cincinnati, O., October 17–21, 1927.

APPRECIATION

1. RESOLVED, that the thanks of the ASSOCIATION be rendered to his Honor the Mayor and Corporation, to the Health Officers and Members of the Department of Health, to the Chamber of Commerce, to individual members of the local Committee of Cincinnati, and to the State Department of Health for their assistance in promoting the arrangements of this meeting.

IN MEMORIAM

2. WHEREAS, it is with deep regret that we record deaths of members of the Association, be it

RESOLVED, that the Association express its acknowledgment of the services to the public health of the following members, and offers its sympathy to the families of the deceased.

Dr. Henrique Autran,
Rio de Janeiro, Brazil.

James R. Bean, D.P.H.,
Jacksonville, Fla.

Ernest S. Bishop, M.D.,
New York, N. Y.

Julius Braunnagel, M.D.,
San Antonio, Tex.

Emma Dolfinger,
Forest Hills Gardens, N. Y.

W. W. Faison, M.D.,
Goldsboro, N. C.

E. C. Fleischner, M.D.,
San Francisco, Calif.

William P. Gerhard, M.D.,
Scarsdale, N. Y.

C. W. Goddard, M.D.,
Austin, Tex.

Isham G. Harris, M.D.,
Brooklyn, N. Y.

Loton Horton,
New York, N. Y.

F. Thomas Kidder, M.D.,
Woodstock, Vt.

W. C. Laidlaw, M.D.,
Edmonton, Alta., Canada.

Richard H. Lewis, M.D.,
Raleigh, N. C.

Henry G. May, M.D.,
Kingston, R. I.

Percy D. Meader, M.D.,
Baltimore, Md.

Eloise Meek, M.D.,
Bellefonte, Pa.

Lt. Col. Henry Nichols, M.C., U.S.A.
Quarry Heights, Panama, C. Z.

Chas. E. Prior, M.D.,
Malden, Mass.

W. S. Putney, M.D.,
Milford, Conn.

Wm. Rhame, M.D.,
Freeport, N. Y.

Thos. W. Salmon, M.D.,
New York, N. Y.

R. C. Salter, D.Sc.,
Baltimore, Md.

Dr. Claude F. Shronts,
Momence, Ill.

George N. Simpson,
Warren, O.

Heman Spalding, M.D.,
Chicago, Ill.

J. W. Thayer, M.D.,
Gilroy, Calif.

Carey J. Vaux, M.D.,
Pittsburgh, Pa.

John A. Wesener, Ph.C., M.D.,
Chicago, Ill.

J. W. Wright, M.D.,
Erie, Pa.

Albion G. Young, M.D.,
Augusta, Me.

Abraham Zingher, M.D.,
New York, N. Y.

COÖRDINATION OF THE PUBLIC HEALTH ACTIVITIES OF THE FEDERAL GOVERNMENT

3. WHEREAS, the American Public Health Association has repeatedly gone on record in favor of the coördination of the public health activities of the federal government; and

WHEREAS, resolutions have been passed by the Association endorsing the principles of the Parker Bill (H.R. 10125) introduced at the last session of Congress, and committees of the Association have been instructed to support this measure; therefore be it

RESOLVED, that the American Public Health Association most strongly urges the Seventieth Congress of the United States to enact into law as soon as possible after it has convened the principles of federal health correlation contained in the measure introduced at the last session of Congress by the Honorable James S. Parker.

RANSDELL BILL

4. Recognizing the need for thoroughly coördinated effort on the part of all government agencies concerned with questions of public health, and

Convinced that fundamental research is the necessary foundation for all progress in health problems, therefore be it

RESOLVED, that the American Public Health Association hereby approves the principles of the Ransdell Bill, S. 5835, introduced in the Senate of the Sixty-ninth Congress of the United States on March 2, 1927.

INTERNATIONAL CLASSIFICATION OF DEATHS

5. WHEREAS, is has been brought to the attention of the Association that it is the custom of general hospitals throughout the country to use a classification of the causes of death differing from the International Classification which is in use by United States Census Bureau therefore, be it

RESOLVED, that the importance of and uniformity of classification of causes of death be brought to the attention of the American Hospital Association with the hope that that association will recommend for general adoption throughout the country the Standard International Classification of causes of death.

EARLY DIAGNOSIS CAMPAIGN OF THE TUBERCULOSIS ASSOCIATIONS

6. WHEREAS, the records of clinics and sanatoria for tuberculosis patients in the United States indicate that not more than 30 per cent of the tuberculosis cases that are being diagnosed in such institutions are of a minimal or incipient character; and

WHEREAS, the reports of physicians to health departments on tuberculosis are also decidedly incomplete, averaging less than two cases for each annual death throughout the United States; and

WHEREAS, the cure of tuberculosis is dependent upon the early discovery of the disease; and

WHEREAS, knowledge on scientific diagnosis of tuberculosis has now progressed to such an extent that it may be popularized, both for the laity and medical profession; be it

RESOLVED, that the American Public Health Association join with the National Tuberculosis Association in every possible way to lend moral support and assistance in other ways to the proposed nation-wide campaign on the early diagnosis of tuberculosis, to be conducted by the national, state and local tuberculosis associations of the United States in March, 1928; and be it further

RESOLVED, that through the *American Journal of Public Health* and in other ways, the Association give emphasis to the need for early diagnosis of tuberculosis and that the members of the Association be urged individually to coöperate in this campaign.

COMMISSIONED STATUS OF SANITARY ENGINEERS

7. RESOLVED, that the American Public Health Association favors the placing of the regular sanitary engineer of the United States Public Health Service in the same commissioned status and with same travel allowances as the regular medical officers in that service, and therefore authorizes the continuance of its committee to act for the American Public Health Association on that matter.

STANDARDS FOR SWIMMING POOLS

8. WHEREAS, the proper sanitation of swimming pools and other bathing places is a

vital factor in the control of public health, and

WHEREAS, The Public Health Engineering Section of the American Public Health Association in coöperation with the Conference of State Sanitary Engineers, through a competent joint committee, has adopted certain standards covering the design, construction, equipment, and operation of swimming pools and other bathing places, be it

RESOLVED, that this Association call upon all of its members and all interested in the promotion of public health to coöperate in having swimming pools and, so far as possible, other bathing places so constructed and operated as to conform to the standards adopted by the joint committee.

SMOKE NUISANCE

9. WHEREAS the advance of Science and of Medical Inventions has resulted in great improvement in the public health and a great increase in social amenities, and

WHEREAS the rapid growth of urban populations and great industries has caused an enormous combustion of coal, the smoke from which may produce serious effects upon the health of city dwellers through intercepting the vitalizing rays of the sun and through the constant inhalation of smoke as well as great financial expenditure, through the cleaning required of clothing and house furnishings, be it

RESOLVED, that the American Public Health Association in convention assembled desires to direct the attention of all legislatures and municipal authorities as to the evils resulting from the "smoke nuisance" and to the need for passing and enforcing such laws as require the installation of smoke-consuming devices in industrial and other furnaces and the adoption by railways of electric or oil engines or other means of suppressing the smoke nuisance caused by them within the limits of cities and towns.

STATE SOCIETIES

WEST VIRGINIA STATE PUBLIC HEALTH ASSOCIATION

The West Virginia State Public Health Association will hold its next annual meeting at Morgantown, November 21, 22 and 23, 1927.

"One of the aims of our Association is the propagation of health education throughout the state. We believe one method of securing this is through organized groups in each county. In this way it would be possible to get representative persons in the various local communities together to discuss the needs and health problems of their communities. This, together with a united effort to meet the needs and solve the problems, would give an unlimited health program in any county.

"It is hoped that such an organization will ultimately be formed in every county in the state. This local organization will be the County Public Health Association and directly affiliated with the State Association, through and from which advice and help can be secured. Two counties have laready formed such affiliated organizations, viz., Harrison County which was the pioneer, and Brooke County, a very close second. Several other counties are now making plans for the completion of an organization of this kind.

"We are pleased to report that Berkeley and Lewis Counties have been added to the list of counties in the state having adopted the county-wide full time health unit plan. Just as soon as suitable personnel can be secured, the health units in these counties will begin operation."—*Bulletin*, Vol. I, No. 1, Sept., 1927.

MICHIGAN

The city of Holland, after putting on a very successful campaign of immunization against diphtheria, has now started a campaign against scarlet fever. This was authorized by the Board of Education and has been successfully carried on by Dr. Cook, the Health Officer. The teachers and city nurse have coöperated in obtaining permission to give the Dick test and subsequent immunization of those susceptible, to about 3,000 school children.

The Dick test, which was started by a representative of the State Department of Health, is being carried on by the local physicians, who have shown a fine spirit of coöperation and who are doing the work practically without remuneration.

SECTION N, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Annual Meeting for 1927–28, Nashville, Tenn., December 26 to December 31, 1927—The tentative program for the meeting of Section N, December 28, includes a symposium, joint meeting with Section C (chemistry), on "What Other Sciences Have Contributed to Medicine." The speakers are E. C. Kendall, G. H. Whipple, L. G. Wesson, A. Hrdlicka, and the retiring presidential address of Dr. Rufus I. Cole.

The other symposium is a joint meeting with the American Public Health Association on "Medical Problems of the South." The speakers are Alfred F. Hess on rickets, Allen K. Krause on tuberculosis, C. C. Bass on hookworm, A. M. Stimson on malaria.

NEW MEMBERS

D. M. Adams, M.D., **Panama City, Fla., City Health Officer**

João Amarante, M.D., **Rio de Janeiro, Brazil, Professor of Pediatrics, National Public Health Dept. (Assoc.)**

D. H. Anderson, M.D., **Richmond, Va., Assistant Epidemiologist, State Board of Health**

Robert W. Balderston, **Philadelphia, Pa., Executive Secretary, Philadelphia Inter State Dairy Council**

Helen R. Baldwin, B.S., **New York, N. Y., Nutrition Director, The Borden Company**

Edna L. Barney, B.S., M.D., **San Francisco, Calif., Assistant Director Child Hygiene and Director of Health, San Francisco State Teachers College**

Charles L. Bennett, M.D., **Los Angeles, Calif., Medical Advisory Board, Los Angeles County Health Dept.**

Dorothy S. Buckley, Ph.B., **Hartford, Conn., Nutrition Director, Connecticut Dairy and Food Council**

Cecil K. Calvert, B.S., **Indianapolis, Ind., Chemist in Charge, Sewage Disposal Plant**

William H. Carey, M.D., **Bellefontaine, O., Logan County Health Commissioner**

William H. Carmault, M.D., **New Haven, Conn. (Assoc.)**

Charles M. Carpenter, D.V.M., Ph.D., **Ithaca, N. Y., Assistant Professor Laboratory Diagnosis, N. Y. State Veterinary College**

Gaudias Choquette, M.D., **St. Hyacinthe, Que., Canada, Medical Director of Health Unit**

Laurence A. Connell, M.D., **Warren, O., County Health Commissioner**

Adah Corpening, **Richmond, Va., Assistant Director State Laboratories**

Russell W. Cunliffe, **Milwaukee, Wis., Director of Laboratories, City Health Dept.**

Frank E. DeMartini, B.S., **San Francisco, Calif., Assistant Sanitary Engineer, State Board of Health**

Ellis K. Devitt, M.D., **Old Lyme, Conn., Health Officer**

Mary C. Dickerman, R.N., **New York, N. Y., Supervising Nurse, Metropolitan Life Ins. Co.**

John L. Dorough, M.D., **Ardmore, Okla., Superintendent Carter County Health Dept.**

James C. Elder, M.D., **Millersburg, O., Health Commissioner**

Frank E. Estes, M.D., **Compton, Calif., Deputy Health Officer, Los Angeles County Health Dept.**

Oliver R. Eylar, M.D., **Waverly, O., County Health Commissioner**

J. A. Frank, M.D., **Columbus, O., Chief Division Hygiene, State Dept. of Health**

Claudeia C. Fretz, R.N., **Quakertown, Pa., State Nurse**

Harry J. Gilligan, **Cincinnati, O. (Assoc.)**

John J. Gilligan, **Cincinnati, O. (Assoc.)**

John H. Gray, M.D., **New York, N. Y., Acting Director Council on Health Education, Shanghai, China (Assoc.)**

Wilmer E. Griffith, B.S., M.D., **Hamilton, O., Health Commissioner**

Charles H. Grimm, Sc.B., **East Akron, O., Business Manager, Springfield Lake Sanatorium**

Mary H. M. Hannick, R.N., **Detroit, Mich., Nurse**

Robert D. Harden, M.D., **Washington, D. C., Army Officer**

Hardie R. Hays, M.D., **Jackson, Miss., Director, Bureau of Communicable Diseases, State Board of Health**

Emlyn Jones, M.D., **Harrisburg, Pa., Chief, Bureau Vital Statistics, State Dept. of Health**

Edgar P. Kable, **York, Pa., Management of Public Water Supply**

Isaac Wm. Kingsbury, M.D., **Hartford, Conn., Physician**

W. H. Knauss, M.D., **Newark, O., City Health Commissioner**

Peter E. LeFevre, B.S., **Chicago, Ill., Associate Milk Specialist, U.S.P.H.S.**

Mary E. Lewis, R.N., **Pittsfield, Mass., Superintendent Visiting Nurse Association**

Alfred B. Lippert, M.D., **Columbus, O., Lecturer on Child Hygiene, State Dept. of Health**

Robert Lockhart, M.D., **Cleveland Heights, O., Director of Health**

J. H. Maynard, M.D., **St. Jean, Que., Canada, Medical Director for St. Jean Health Unit**

Sylvan McElroy, M.D., **Orlando, Fla., City Health Officer**

Lisabel McKenzie, R.N., **Flint, Mich., Supervisor of Nurses, Dept. of Health**

Olive E. Meyer, R.N., **Murfreesboro, Tenn., Director Nursing Service, Child Health Demonstration**

Jean S. Nichols, B.S., **Elyria, O. (Assoc.)**

Edith B. Pierson, R.N., **Fargo, N. D., Supervisor of Nursing, Child Health Demonstration**

Irva C. Plummer, **Columbus, O., Chief Division of Vital Statistics, State Dept. of Health**

Ruth P. Proudfoot, R.N., **Toledo, O., with Lucas Co. Health Dept.**

Frederick A. Rhodes, M.D., **Culver City, Calif., Health Officer**

Hugh B. Robins, M.D., **Charleston, W. Va., Health Commissioner**

Elizabeth A. Russell, R.N., **Winnipeg, Man., Canada, Director, Manitoba Provincial Public Health Nurses**

L. P. Savoie, M.D., **St. Jean, Que., Canada, Health Commissioner, St. Jean Co. Unit**

A. Clement Silverman, M.D., **Syracuse, N. Y., Director, Bureau of Communicable Diseases, City Health Dept.**

Harry G. Southard, M.D., **Marysville, O., County Health Commissioner**

J. F. Stultz, M.D., **Urbana, O., County Health Commissioner**

Otto C. Stutz, **Upper Sandusky, O., Health Commissioner**

H. H. Tuttle, M.D., **Springfield, Ill., Superintendent City Health Dept.**

F. Holman Waring, B.Sc., **Columbus, O., Chief Engineer, State Dept. of Health**

Nannie L. Winn, M.D., **Nashville, Tenn., Associate Director of Child Hygiene, State Health Dept.**

J. E. Wolfe, A.B., M.D., **Wichita, Kans., Director of Public Welfare**

Juanita Woods, R.N., **Richmond, Va., Director Instructive Visiting Nurse Association**

BOOKS AND REPORTS

The Life and Work of Sir Patrick Manson—*By Philip H. Manson-Bahr, D.S.O., M.D., F.R.C.P., and A. Alcock, C.I.E., I.L.D. Aberd., F.R.S., Lieut.-Colonel I.M.S. (retired). New York: Wm. Wood,* 1927. 273 pp. Price, $5.50.

During the past few years an unusual number of biographies and autobiographies have appeared, all of them interesting and some of unusual value, not only historically but in affording examples to those who have followed. Not the least important of these is the "Life of Sir Patrick Manson," which carries with it an unusual flavor of romance, and with no disparagement to other great pioneers, illustrates an unusual persistence and love of knowledge which brooked no interference from the adverse circumstances under which he lived and worked. Unfortunately for us, much of his life spent in China is a more or less sealed book, since practically all of those who knew him there have passed away. His early scientific career was spent largely among unfriendly and critical Chinese who had no knowledge of science and at first doubted the ability of the man who proved such a benefactor to them.

Unfortunately for him, as well as for the world, much of his early work was published in the *Customs Gazette* of Shanghai under the head of "Medical Reports." Correspondence with friends in England gave light to some of his discoveries, but much of his early work was buried in this publication which very few physicians saw, and only here and there do we find abstracts in medical journals read by the profession. Few men have worked under greater difficulties and so absolutely alone professionally; but his Scotch character and Scotch persistence overcame everything and led to discoveries which have been of vast benefit to the world. One can hardly doubt that he would have accomplished even more had he enjoyed proper scientific contacts, and had more money for apparatus, his greatest errors having been due to reliance on standard textbooks of the time.

His name will always be inseparably connected with the story of Filaria and Filariasis. He was, however, a conspicuous leader of men, and when he went to Hongkong through the necessity of earning a better living, he founded the first medical society and the first medical college there, and later the section on Tropical Medicine of the British Medical Association.

No other man did so much to encourage Sir Ronald Ross in his study of the transmission of malaria. On his return to London to live, he crowned his scientific work by the foundation of the London School of Tropical Medicine which stands as a monument to his vision. He was remarkably versatile. His researches covered a wide range of medicine; he was an excellent surgeon, an efficient health officer, and an unusually capable organizer.

The book is admirably done, the two authors having devoted a vast amount of careful research to tracing the life and work of their hero. As a man, Dr. Manson was of the finest type, above all lovable and helpful to those with whom he came in contact. His ability to overcome the prejudices of the Chinese was remarkable. His inaugural Address at the founding of the Hongkong College of Medicine, in 1887, shows remarkable prevision.

This book will certainly find a place in every library and will be read eagerly by all interested in the parasitic diseases of man, especially those peculiar to the tropics. Inspiration and enlightenment will be found on every page. It is well illustrated with original drawings taken from Dr. Manson's Diaries. Numerous photographs of Dr. Manson at various stages of life are given. The book ends with an appendix giving a list of the honors bestowed upon him and a complete list of his publications.

M. P. RAVENEL.

Examination of Children by Clinical and Laboratory Methods—*By Abraham Levinson. (2nd ed.) St. Louis: Mosby,* 1927. 192 pp. Price, $3.50.

Works on laboratory methods and technic usually do not give any special attention to the pediatric phase of the subject, and on the other hand, few books on children's diseases written by clinicians devote much space to laboratory

methods. The reason for the great popularity of Dr. Levinson's work which first appeared three years ago, was the great need for a simple, authoritative book that would give to the general practitioner or children's specialist in a clear and simple way, a description of the many diagnostic tests and procedures which have come to be of so much help in the treatment of children. The fact that the writer is a clinician as well as an authority on laboratory methods makes his text rather unique, in that it combines descriptions of clinical conditions and the laboratory tests indicated by them. The illustrations are likewise divided; consisting of those of clinical methods and findings; and those of laboratory work.

The changes in the second edition are not striking, which is a tribute to the thoroughness of the preparation of the material for the first edition. The health worker in the laboratory or child health field will find a background in this volume that will be of real assistance to him in the sound planning of pediatric preventive work. Too often it is charged that child health programs are too elaborate, too theoretical, too impractical. From the diagnostic and examination point of view the program maker will find this book of value.

ALEC N. THOMSON

Compend of **Physiology**—*By Albert P. Brubaker, A.M., M.D. (16th ed.) Philadelphia: Blakiston,* 1927. Price, $2.00.

A compend is a compend. Human physiology is a big subject. To boil down into the form of a compend so vast a subject may serve the medical student in his review work and at the same time have a place in the hurried day of a health worker who is not quite sure of the meaning of nearsight (myopia) or who cannot remember the difference between hypermetropia and farsightedness.

No one should mistake a compend for a treatise. With this in mind and books on physiology available the compend can find a useful place upon the health worker's desk.

ALEC N. THOMSON

Wie kann die **Menschheit von der Geissel der Syphilis befreit werden?**—*By Dr. Erich Hoffmann. Berlin: Verlag von Julius Springer,* 1927. 54 pp., 8 figs. Price, M. 2.40.

This is a propagandist pamphlet in the cause of war on venereal diseases in Germany in favor of free treatment by the state for dependents, delinquents, and those unable to pay for the service. The author believes that, with the present methods of early detection of syphilis, its curability, and methods of preventing it, its eradication will be possible. Early advice by competent state-licensed physicians, and the elimination of quacks, is urged. Blood examination in pregnancy, and of persons in state supported institutions, orphanages and the like, is advised as a means of rooting out acquired and inherited syphilis. Instruction of the young in the preventability and curability of the disease is advised. Coöperation of institutional administrations, physicians, and insurance authorities in prevention and cure and the free treatment of the poor is urged. The fight against alcoholism and immorality, and for proper housing conditions operates also against syphilization. A footnote added in proof states that the law was passed.

C. A. KOFOID

Die Menschenthymus in Gesundheit und Krankheit—*Ergebnisse der numerischen Analyse von mehr als Tausend menschlichen Thymusdrüsen. Teil I: Das normale Organ. Zugleich eine kritische Beleuchtung der Lehre des "Status Thymicus," von J. Aug. Hammar. Leipzig: Akademische Verlagsgesellschaft M.B.H.,* 1926. 570 pp., 352 figs., 64 tables. Price, 81 marks.

Professor Hammar of the University of Upsala has assembled in this scholarly treatise all of the known information on the structure of the supposedly normal thymus gland in man. To this he adds his own detailed and systematic observations on 138 cases of fetal thymus and 199 from various ages in the postfetal life of man. Full autopsy findings are recorded for most of the cases, in which the data on which the normality of the gland is based may be inspected. The author regrets that he was unable to investigate the whole endocrine system in each of these cases, but this task is beyond the ability and resources of any one investigator. The value of such a combined study is, however, increasingly evident as the concept of the individual as an interacting system gains momentum. Vital statisticians will find Professor Hammar's discussion of the biological significance of the mean in quantitative methods, or lack of it, both interesting and illuminating, and his comparisons of it with that of the amplitude of variation very suggestive.

He concludes that the "status thymicus" is not proven as a constitutional anomaly. En-

larged thymus accompanies heightened vulnerability, but its relation to this condition may be revealed only by fuller knowledge of the whole endocrine system. The thymus of suicides lies within the limits of the normal. The characteristic disturbance in its structure in these cases may be a reflection of the play of internal secretions elsewhere. The author is disinclined to accept conclusions that there are demonstrable territorial and racial differences in the thymus of man.

C. A. KOFOID

Book Reviewing—*By Wayne Gard, Director of Courses in Journalism, Grinnell College. New York: Knopf,* 1927. 159 pp. Price, $2.00.

This book, intended for "free-lance reviewers and for classes in reviewing" is one of the Borzoi Handbooks of Journalism, edited by Nelson Antrim Crawford.

The enormous output of books and the number of American newspapers (231) which regularly give space to reviews has created a demand for a greater number of qualified reviewers than is available. The author points out that the literature of practical advice along this line is extremely meager, and gives the titles of a small number of books which he has consulted and which he recommends.

One of the most useful chapters, called "What Editors Want," gives the views of a number of literary editors in America and one from England. It is interesting to note the different ideas expressed, though certain helpful essentials are given by almost all. Nearly one-half of the book is given up to examples of reviews by well-known writers. These are interesting and instructive.

The disappointing feature of this book is that it discusses only literary reviews. Scientific books are barely mentioned and no advice concerning them is given. However, there is sound advice as to style, conciseness, sincerity and familiarity with the subject at hand, which applies to reviews of scientfic works as well as to novels and literary essays.

In undertaking this short review, the writer is violating one of the first rules given—that a sensible reviewer will refuse any book in a field with which he is unfamiliar. Much of the material presented will be found useful by reviewers of scientific and technical books, and to such it can be commended, hoping that someone will, in the near future, do for science what Mr. Gard has done for literature.

M. P. RAVENEL

Popular Education in Public Health—*By W. Allen Daley and Hester Viney. London: H. K. Lewis and Co., Ltd.,* 1927. 210 pp. Price, $2.00.

This book, prepared with a real appreciation of the points of view and living conditions of those who are taught, is the first book so far as we know to review the whole range of health education—the visiting nurse, the classroom, the clinic, the lecture hall, the picture theater and broadcasting station, the prospective mother in the home and at health centers, the father, children, young people, and adults. With a few exceptions the principles and methods set forth agree with approved practices in the United States and Canada. The fact that on both sides of the Atlantic so much of common technic has been worked out is encouraging. There are some obvious differences due to differing conditions. The most striking of these is the greater emphasis in England upon the leadership and participation of the official agencies and, apparently, the lesser part of voluntary local health organizations.

The limited space given to classroom instruction suggests that a wider range of experimental work has been done on this side and that more progress has been made toward the development of both program and methods. There is no mention in the book of the more spectacular methods such as parades, health clowns and so on used in America.

Several references to fees for health speakers and to the selling of health literature suggest that to a limited degree health education is paying its way. At the same time the chief financial emphasis is upon the use of municipal funds for this work.

The chapter on The Health Week (and Health Exhibition) emphasizes the inclusion of many topics in one celebration, a practice which we are gradually discarding in this country. Under Specialized Publicity are brief summaries of methods and of important teaching points on smallpox, influenza, milk, cancer, etc. About 80 motion pictures on health subjects are listed.

The field of public health nursing is discussed under Teaching Health in the Home, and Teaching at Clinics, with the following subheadings: Ante-Natal Visiting, Visits Concerning the Baby's Health, School Visiting, Principles of Giving Advice on Birth Control, Tuberculosis Visiting, Domiciliary Visiting of Cases of Venereal Disease, Child Welfare Clinics, Schools for Mothers.

The book is written simply and sympathetically, with dignity and the expression of high ideals. It includes much practical technic. Many health workers in this country will be stimulated by the statements of the problems in health education and should be helped by the practical suggestions. EVART G. ROUTZAHN

City Health Administration—*By Carl E. McCombs. New York: Macmillan,* 1927. 524 pp. Price, $5.50.

The author states in the introduction that this book is written with the layman's point of view in mind, and is an attempt to present non-technical arguments and discussions of the various health activities of cities.

There are three parts—municipal health functions, the organization and administration of sickness preventive functions. In the first section the author has treated the sickness and treatment functions together and has presented the arguments which justify municipalities in engaging in activities for the protection, maintenance and promotion of health of its citizens. In section two the common public health activities of communities are discussed setting forth the importance of each to a degree, the trend of development of the service and briefly certain essentials for a successful program, with a discussion of the public health budget, the relation of official and unofficial agencies and methods of study of results. Section three deals with sickness care in hospitals and dispensaries.

About 120 pages are devoted to this section as compared with 340 pages on preventive services, which may indicate the author's idea of the relative importance of the services in a health program.

The book is exceptionally well written, setting forth in quite different terms the objectives and the values of the various health services. Using examples drawn from specific cities, it emphasizes important points. In a few instances the fact that conditions cited existed several years ago must be taken into consideration and slight adjustments made in applying arguments to present day conditions. The book should prove of immense value to health officers for use with their boards of health or governing councils or other persons whom they wish to interest in present day programs. It is well and readably written with copious references to other material on this subject and also carries with it a selected bibliography classified by activities. W. F. WALKER

Cancer Control—*Report of an International Symposium held under the Auspices of the American Society for the Control of Cancer. Lake Mohonk, N. Y. Chicago: Surgical Pub. Co.,* 1927. 336 pp. Price, $1.00.

This book, a report of the Cancer Symposium held at Lake Mohonk, New York, in September, 1926, contains an interchange of ideas of representatives of nine nations relative to every phase of the cancer problem.

The 32 papers cover such phases of the cancer problem as the European Cancer Centers, the control measures used in this country, X-ray, radium and lead therapy, cancer research, statistics, and education. In the formal resolutions are incorporated those facts and opinions regarding cancer which were agreed upon by all members of the symposium. About one-third of the report is devoted to foreign methods of control, while the remainder contains a most poignant discussion of the direct attack upon cancer from clinical, laboratory and statistical points of view.

This volume presenting the whole cancer field in some three hundred pages will be most profitable to health officers, physicians, and the more progressive laymen. It should be available in every reference library. Constituting as it does the opinions of the world's experts on cancer, and describing the world-wide activities against the disease, its value is inestimable.

HERBERT L. LOMBARD

Manual of Psychiatry—*By Aaron J. Rosanoff, M.D. (6th ed.) New York: Wiley,* 1927. 697 pp. Price, $6.00.

This is the sixth edition of a book that was first published in 1905. In reality it is a symposium in which Dr. Rosanoff is charged with general editorial responsibility, in addition to contributions on various of the conditions discussed.

Much of the discussion of the standard psychoses has been written by J. Rogues de Fursac, M.D., a French psychiatrist. H. L. Hollingworth, Ph.D., contributes a chapter on the "Applications of Psychology to Psychiatry," and Mary C. Jarrett writes an interesting chapter on the "Application of Sociology in Psychiatry," stressing the functions and need for psychiatric social workers. Clarence A. Neyman, M.D., gives a chapter on "Laboratory Technique." In addition, J. Harold Williams, Ph.D., discusses "Mental Deficiency, Group Tests, and Intelligence and Educational Achievement Tests."

Presumably this book is designed to be of use chiefly to medical students and physicians. For this purpose, in the opinion of the reviewer, it fails to give the reader, interested in obtaining the modern concepts and therapeutic procedures of mental disorders, an adequate impression of current neuropsychiatric developments. For example: those portions of the book dealing with dementia præcox, manic-depressive, psychosis, etc., approach the subjects from the same old static, Kraepelinian descriptive point of view. Little of the modern dynamic concept of mental disorders is to be found, and perhaps the severest criticism of the book as a whole is its weakness in interpretation of the patient's symptoms. The section of the psychoneuroses, and especially that on military psychiatry, again repeats the decidedly unique etiological theories of these disorders created and defended so warmly by Dr. Rosanoff, but by few others. The medical student or physician who relies exclusively on this book for his concept of psychoneurotic mechanisms is sure later to be embarrassed by the wide disparity between modern concepts of this condition and the one offered by Dr. Rosanoff.

Some criticism also should be leveled against the practice of some of the contributors in continuing to cling, in numerous instances, to an obsolete neuropsychiatric terminology, although it is only fair to say that in the appendix of the book is given an official classification of mental diseases as adopted in 1917 by the American Psychiatric Association.

On the other hand, the chapters dealing with neurosyphilis, and with certain others of the so-called organic psychoses are unusually well written. It does seem too bad, however, that in the all too brief chapter devoted to lethargic encephalitis the discussion is not more detailed and thorough. This disorder is being diagnosed today with increasing frequency, and already a considerable body of knowledge regarding its residuals is available. The amount of space devoted to it in the book, however, seems disproportionate to the importance this subject really deserves.

The idea of including in a manual of this sort laboratory technics of the Wassermann tests and others, as well as some 120 pages given over to a detailed and graphic portrayal of the technic of psychometric tests, and of frequency tables used in scoring and evaluating test results, is novel and unusual. It is questionable, however, whether the reproduction in a book of this sort of the actual technic of applying and scoring mental tests is altogether wise. It is widely accepted to-day that a psychiatrist should of course be thoroughly familiar with the theories of Wassermann tests, psychometric tests and other diagnostic aids. Such familiarity, however, does not necessarily imply a need to be able personally to master the many infinite details in the conducting of the tests themselves. Trained technicians are available for such purposes.

There is no inherent objection to the physician being able himself to perform laboratory tests, to take X-ray pictures and develop the plates, or to administer mental tests, providing he has had adequate training in these technics, and providing he has sufficient time. But proficiency in such technics seldom can be acquired wholly from books. To include detailed instructions in the art of giving mental tests in such a manual as the one being reviewed, to some incautious persons, unaware of the pitfalls surrounding this complicated procedure, is a direct incitement to rush in where angels fear to tread.

While this book cannot be dismissed lightly or regarded generally as unsound, yet the reviewer does feel that there are other textbooks on psychiatry from which the medical student will obtain a concept of mental disorders more dynamic and more in keeping with modern developments in this medical specialty. On the whole, the book has failed to keep abreast of the rapidly changing facts and theories in the field of psychiatry. GEORGE K. PRATT

Advising the Tuberculous About Employment—*By W. I. Hamilton, Contributing Editor of Occupational Therapy and Rehabilitation, and T. B. Kidner, President, the American Occupational Therapy Association. Baltimore: Williams & Wilkins,* 1926. 171 pp. Price, $2.00.

This is "A Book for the Doctor, the Nurse, the Public Health Officer, and the Patient." It is composed principally of papers and bulletins by the authors which have appeared elsewhere, as in the *Journal of Outdoor Life, U. S. Veterans Bureau Medical Bulletin,* etc. These have been assembled here in response to numerous requests that the material be recast in permanent form. Seven chapters are by Mr. Hamilton, three by Mr. Kidner, and the final one, "Reading Notes," by Isabel Towner, Librarian of the National Tuberculosis Association (now of the Smithsonian Institution Library).

The object of the book is to advise those handicapped by tuberculosis as to industrial environments, especially upon return from sanatorium treatment. It is necessary, therefore, that advisers note the handicaps of the patient—physical, mental, etc.—as well as the hazards of the proposed job. The chapters discuss: What may the arrested tuberculous expect on return to employment? A statement of the problem; Vocational advisement and guidance; Selection of an occupation; Collecting and recording information about occupations; Danger signals and standards; Coöperating agencies; The special problem of placement; Tuberculosis colonies and village settlements (in which the British experience is reviewed); and Special workshops (such as the Altro Mfg. Company of New York, which plan is strongly commended). The last chapter is really a bibliography and is much more up to date than most of the material cited in the book itself.

Sample situations encountered in practice are illustrated by the conversational method as well as by citation of case experiences. Excerpts from literature are frequently cited at length. The authors themselves are professional advisers in the field. They recognize the need of technically trained persons to assist them. In this respect the book is by laymen who are discussing many medical and technical subjects usually by citing various authorities. Naturally, many of the citations would not particularly appeal to those technically informed in the subjects discussed. Conflicts of statement or opinion occasionally occur such as the advocacy of a "most evenly heated place" (p. 3), and a quotation from Professor (Leonard) Hill (p. 106), that "slight but constant changes in the temperature and motion of the air . . . are very important in obtaining good results."

The idea of a "Director of Occupations" upon the hospital staff is advocated, and rightly, but such an appointee would have to be a "Jack of all trades" or surround himself with a competent advisory staff. A rather obsolete classification for harmful dusts is given (p. 65) which takes no cognizance of silica, the item which many authorities now believe is practically the only dust to be feared in relation to tuberculosis.

While bibliographies follow at the end of each chapter, the book contains no index. The old pyogenic theory of disease is recalled in the statement (p. 107) "darkness, dirt and disease are associated together as an evil trinity." The most valuable chapters concern the methods of placement.

EMERY R. HAYHURST

BOOKS RECEIVED

BOOK REVIEWING. By Wayne Gard. New York: Knopf, 1927. 159 pp. Price, $2.00.

OUTLINES IN HEALTH EDUCATION FOR WOMEN. By Gertrude Bilhuber, D.P.H., and Idabelle Post, B.S. New York: Barnes & Co., 1927. 192 pp. Price, $2.00.

TOWARDS HEALTH. By J. Arthur Thomson, M.A., LL.D. New York: Putnam, 1927. 361 pp. Price, $2.00.

A LABORATORY COURSE IN GENERAL ZOÖLOGY. By Henry Sherring Pratt, Ph.D. New York: Ginn, 1927. 244 pp. Price, $1.72.

PRINCIPLES OF PHYSICAL EDUCATION. By Jesse Feiring Williams, M.D. Philadelphia: Saunders, 1927. 481 pp. Price, $3.00.

INFECTIOUS DISEASES AND ASEPTIC NURSING TECHNIQUE. By D. L. Richardson, M.D. Philadelphia: Saunders, 1927. 182 pp. Price, $1.50.

ALUM IN BAKING POWDER. Report of the Trial Examiner in Federal Trade Commission Docket No. 540. New York: Royal Baking Powder Co., 1927. 90 pp. Free.

GRAIN THROUGH THE AGES. By Grace T. Hallock and Thomas D. Wood, M.D. Chicago: Quaker Oats Co., 1927. 96 pp. Free in limited quantities.

THE LAW OF LIVING THINGS. By Edward J. Menge, Ph.D., Sc.D. Milwaukee: Bruce Pub. Co., 1927. 530 pp. Price, $1.72.

GETTING WELL AND STAYING WELL. By John Potts, M.D. St. Louis: Mosby, 1927. 223 pp. Price, $2.00.

CLEANLINESS AND HEALTH. By C. E. Turner and Georgie B. Collins. New York: Heath, 1926. 236 pp. Price, $.88.

BOILER FEED WATER PURIFICATION. By Sheppard T. Powell. New York: McGraw-Hill, 1927. 363 pp. Price, $4.00.

MUNICIPAL AND RURAL SANITATION. By Victor M. Ehlers and Ernest W. Steel. New York: McGraw-Hill, 1927. 448 pp. Price, $4.00.

WHAT SHALL THE PUBLIC SCHOOLS DO FOR THE FEEBLE-MINDED? By Guy Pratt Davis. Cambridge: Harvard University Press, 1927. 225 pp.

LIVING MACHINERY. By A. V. Hill. New York: Harcourt Brace, 1927. 306 pp. Price, $3.00.

THE BACTORIOLYTIC TANK SYSTEM IN SOUTH AUSTRALIA. By W. Ramsay Smith, M.D. 7th ed. Adelaide: Government Printer, 1927. 48 pp.

A STUDY OF THE POLLUTION AND NATURAL PURIFICATION OF THE ILLINOIS RIVER. I. Surveys and Laboratory Studies. Washington: U. S. Public Health Service, 1927.

HEALTH DEPARTMENT AND OTHER REPORTS

IRA V. HISCOCK

Report on Municipal Sanitary Engineering Practice in Great Britain—By H. W. Streeter, Sanitary Engineer, U.S.P.H.S.—The present practice and tendencies of municipal sanitary engineering in Great Britain are clearly and compactly set forth by H. W. Streeter in this report, which occupies 47 pages and contains in addition 39 photographs and 3 appendices. The data of the study were gathered largely during the participation of the writer with sanitary engineers from other nations in an exchange of sanitary engineers held in Great Britain under the auspices of the British Ministry of Health and the Health Section of the League of Nations in the summer of 1926.

Administratively, it is noteworthy that, "with minor exceptions, the sanitary services of Great Britain, including water supply, sewage and refuse disposal, public cleansing, and certain special services closely allied to sanitation, such as housing and town planning, are carried out as public undertakings under the direct authority of the local councils." Expert engineers and technicians are employed by the local councils. Stimulation to sanitary progress is supplied by the Ministry of Health, which coöperates with the localities, serves as a central authority in sanitary matters, and, while functioning much as do state departments of health in the United States, has greater powers over local activities. Another interesting administrative feature is the formation of rivers and conservancy boards to coördinate the several local agencies often involved in problems of stream pollution and water conservation. Detailed treatment is given by this report to the subjects of Administration, Water Supply, Sewage Disposal, Refuse Disposal, and General Sanitation. —*Pub. Health Bull. No. 166.* H. H. W.

Arizona, 1925–26—The biennial report of the State Board of Health of Arizona for the years 1925 and 1926 shows an infant mortality rate per 1,000 live births for 1925 of 132.9 and for 1926 of 116.0. Arizona is now a member of the Registration Area of the United States Bureau of the Census. The government survey gave Arizona a death registration of 97.92 per cent and a birth registration of 92.08 per cent. Smallpox incidence showed a decided decrease, 117 cases appearing in 1925 as compared with 18 in the following year.

The trachoma situation among the Indian and Mexican populations in Arizona has long been a serious problem. In 1924 the situation was called to the attention of the Surgeon General of the United States Public Health Service, and in 1925, 3 ophthalmologists specially trained to handle the disease, together with 6 special nurses, worked continuously on the problem. During that year over 10,250 Indians were examined, out of which number 2,079 cases of trachoma were found. These ophthalmologists performed 1,718 operations for trachoma and 430 other eye operations. The prevention of the disease can be accomplished by the quarantine of those affected, and in 1926 a favorable improvement in conditions was noted, 755 cases being the total for the year.

Buffalo, N. Y., 1926—The City of Buffalo enjoyed a successful year in 1926 from the standpoint of public health. The Bureau of Communicable Disease Control and Vital Statistics reports the year's death rate as 13.89 and the birth rate as 22.82. Substantial decreases over the figures of ten years ago are shown by typhoid fever, pneumonia, pulmonary tuberculosis, measles, scarlet fever, whooping cough, and diphtheria. The infant mortality rate, 83.78, is the lowest on record in Buffalo. Increases are noted in anterior poliomyelitis, organic disease of the heart, and cancer. The Bureau of Child Hygiene made progress, particularly in provision for crippled children and in immunization. Food inspection, sanitation, and laboratory divisions showed progress. Expansion in hospitalization was achieved. About $500,000 was expended for health work.

The annual report consists of 76 pages, neatly printed and cloth bound. Interpretive material is briefly worded. Detailed statistics are clearly tabulated.—H. H. W.

New Bedford, Mass.—The 1926 report of the New Bedford Board of Health is made up, for the most part, of tabular material. This city of 126,242 inhabitants reports a general death rate of 11.9, a birth rate of 21.97 and an infant mortality rate of 100.3. The four principal causes of death during 1926 were heart disease, broncho-pneumonia, cerebral hemorrhage and pulmonary tuberculosis.

A mild epidemic of scarlet fever during the

year resulted in the reporting of 476 cases of this disease. Of this number, however, there were but 4 deaths. With the addition of a floating nurse, the nurses engaged in infant welfare work made 39,701 visits, more than 2,000 in excess of those made in 1925. Children in the kindergarten and first three grades received 18,899 prophylactic treatments from hygienists last year, which means that over 90 per cent of the children in the grades that were cared for had their teeth cleaned twice during the school year.—R. E. W.

New Britain, Conn.—In a 60-page, paper bound report, the Board of Health of New Britain, Connecticut, gives an account of its activities for the year ending March 31, 1927. In a summary of the work, the superintendent of health states that the greatest single accomplishment during the year was the completion of the $25,000 addition to the Municipal Abattoir.

Progress in the reporting of communicable diseases has been made through the assistance of a nurse employed by the Visiting Nurse Association, who gives part-time care to the poorer families, and through a more complete placarding and quarantining program carried on by the health department. A noticeable decrease in diphtheria has taken place since 1924 when 188 cases with 15 deaths occurred, while for the year ending 1927, this number dropped to 23 with but 2 deaths.

New Britain, with a population for the calendar year 1925 of 70,000, reports a general death rate of 9.1, a birth rate (exclusive of stillbirths) of 22.94, and an infant mortality rate per 1,000 births of 79.7.—R. E. W.

Cancer Control.—The American Society for the Control of Cancer, New York City, has issued an account of the meeting of 100 of the world's principal students of the prevention of cancer at Lake Mohonk. The volume, which contains 336 pages, sells at $1.00. Among the features of the volume are a discussion of the existing theories as to the causes of cancer by Professor Gustave Roussy of Paris; directions for the prevention of cancer, by Professor James Ewing of New York; a discussion of the prevalence of cancer, by Dr. H. J. Deelman of Holland; a description of the lead treatment of cancer, by Professor Francis Carter Wood of New York City, and an account of the organized warfare against cancer in England, France, Switzerland, Germany, Belgium and Denmark.

This review of our knowledge of cancer should prove valuable to physicians, and should be made available in medical and reference libraries. The report deals with the cancer problem throughout the world, and the wide dissemination of this knowledge should result in much good.

Lorain County, O.—The Lorain County General Health District was established in 1920. This district comprises 10 villages and 20 townships with a land area of 476 square miles, and a population of 33,433 inhabitants. This and other important information is given in a foreword to the 1926 report and prepares the reader for the interesting account of the year's activities. An organization chart of the health district, shows the activities of the department, the functions of the various members of the staff, and the relation of the organization to other official agencies.

The great majority of school children are reported to have been rendered immune to diphtheria and smallpox in the past three years, in addition to many preschool children who are likewise admitted to school immunizing clinics. Child welfare conferences for the examination of infants and preschool children were conducted during the summer months. Pediatricians were provided by the State Department of Health, their expenses being defrayed by the Sheppard-Towner Fund. Special activities also included the maintenance of a crippled children's clinic, and the conduct of a goiter survey of school children. For the entire work of the department, a gross expenditure per capita of 59 cents is noted.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Children's Appetites—It is as important to guide the child into proper attitudes toward eating as it is to insure a balanced diet. The results obtained by teaching mothers how to train their children to eat are reviewed in an unusual manner.

ALDRICH, C. A. Prevention of Anorexia in Children. J. A. M. A., 89:12 (Sept. 17), 1927.

School Mental Health—The mental hygiene program of two Syracuse public schools serves as a basis for the discussion of the importance and possibilities in improving the mental hygiene of "difficult" school children.

ALLEN, ELIZABETH. Mental Hygiene in Two Schools. Pub. Health Nurse, 19:9 (Sept.), 1927.

Host Susceptibility—Diet and other hygienic conditions, especially heat, affect the host's susceptibility to enteric infections and also alter the rate of elimination of the organisms by carriers.

ARNOLD, L. Host Susceptibility to Typhoid, Dysentery, Food Poisoning and Diarrhea. J. A. M. A., 89:10 (Sept. 3), 1927.

Undulant Fever—Goats and sheep appear to be the conveyors of undulant fever to man, but bovine origin is possible. The author doubts that *Br. abortus* and *Br. melitensis* are variations of the same organism.

BASSETT-SMITH, P. The Relationship of Undulant Fever of Man to Epidemic Abortion of Animals. J. State Med., 35:9 (Sept.), 1927.

Massachusetts Anti-Tuberculosis Program—A review of the development of the anti-tuberculosis program precedes a statement of future work: early case reporting, examination of children and contacts, early hospitalization, pasteurization of milk, and tuberculin testing of cattle are the goals.

CHADWICK, H. D. The Tuberculosis Situation in Massachusetts. Boston M. & S. J., 197:11 (Sept. 15), 1927.

Continuous Child Hygiene—The pros and cons of combining under one authority infant and school child hygiene are ably presented. The pros hold that economy and singleness of purpose would be effected by the combination, and the cons hold that the two services are so distinct that successful workers in one field might not do well in the other.

CLARK, R. V., and CASSIE, ETHEL. Amalgamation of Child Welfare and School Medical Work. Pub. Health, 40:12 (Sept.), 1927.

Establishing Health Habits—Can children best be taught (so that a permanent improvement is secured) to brush the teeth regularly by "sending up a balloon" as a reward, or by teaching the gratifying effect of having a clean mouth. A stimulating discussion which knocks some of the "chore" systems rather hard.

CHAYER, M. E. An Analysis of Some of the Methods of Establishing Health Habits. Pub. Health Nurse, 19:9 (Sept.), 1927.

Industrial Hazards in Cotton—A detailed discussion of the various industrial health hazards encountered in the several branches of the cotton industry in Great Britain.

DEARDEN, W. F. Health Hazards in the Cotton Industry. J. Indust. Hyg., 9:9 (Sept.), 1927.

Fallacies in Children's Diets—"A quart of milk a day" and other glib slogans come in for a searching analysis that leads to the conclusion that, despite all the propaganda for standard formulæ, it is necessary that the formula fit the child not the child the formula.

GRULEE, C. G. Common Fallacies in the Feeding of School Age Children. Nation's Health, 9:9 (Sept.), 1927.

Diphtheria Carriers—In this study local antiseptics were found of no value in clearing up carriers, but tonsillectomy and removal of adenoids shortened the carrier period. Additional evidence from Great Britain in this moot question.

HARRIES, E. H. R., et al. The Carrier of Virulent Diphtheria Bacilli. Lancet, 2:13 (Sept. 24), 1927.

Infant Feeding—A note reporting on the practice of four-hour nursing (instead of three hours) in which the infant nurses from each breast for ten minutes at each feeding.

HAYWARD, E. M., and MOWBRAY, L. Interesting Comparisons in Feeding Schedules for Full Term New-Born Infants. Boston M. & S. J., 197:13 (Sept. 29), 1927.

Animal Tuberculosis—The paper is a discussion of the danger of transmitting bovine tuberculosis through raw milk and the possibility of transmitting the disease from other animals such as dogs, hogs, and birds.

HULL, T. G. Man's Relation to Animal Tuberculosis. Nation's Health, 9:9 (Sept.), 1927.

School Absences—The only direct correlation found was between school absence due to respiratory disease and the daily diet of the

child. Environmental factors in home and school showed no direct correlation.

LINCOLN, E. M. Etiology of Respiratory Disease in the City and County School of New York City. Am. J. Dis. Child., 34:3 (Sept.), 1927.

Rheumatism—Preventive measures to be adopted against rheumatism include among others "measures undertaken to prevent the incidence of goiter; viz., the *drainage of marshy or damp soils*" . . . [the italics are the author's]. The other preventive measures are less unusual.

LLEWELLYN, L. L. J. Industrial Aspects of Rheumatism. J. State Med., 35:9 (Sept.), 1927.

Calcium in Spinach—A brief experiment in feeding spinach as the only food high in calcium produced distinct calcium balance in healthy women, indicating that the high oxalic acid content of the spinach did not interfere with assimilation.

MCLAUGHLIN, LAURA. Utilization of the Calcium of Spinach. J. Biol. Chem., 76:3 (Sept.), 1927.

Light Therapy—The all-advised use of quartz light when less expensive substitutes might better be employed is inveighed against by the author. Too much sales pressure by manufacturers causes physicians to purchase expensive outfits and thus a tendency is created to use them unnecessarily.

MORSE, J. L. A Plea for Sanity in the Use of the Modern Methods for the Prevention and Treatment of Rickets. Boston M. & S. J., 197:10 (Sept. 8), 1927.

Etiology of Trachoma—A small, gram-negative, motile (in some media) bacillus resembling the diphtheroids, isolated from cases of trachoma in Indians, produced typical lesions when inoculated into the eyelids of monkeys. The organism was recovered in pure culture from the monkeys and the disease could be transmitted in series.

NOGUCHI, H. Experimental Production of Trachoma-like Condition in Monkeys. J. A. M. A., 89:10 (Sept. 3), 1927.

The Bacteriophage—The author reasons that the phage is a living organism because it shows variability and response to environment. This conclusion is reached only after a fair presentation of the arguments advanced by the opponents of D'Herelle's theory.

PRAUSNITZ, CARL. The Nature of the Bacteriophage. Lancet, 2:11 (Sept. 10), 1927.

Growth of Underweight Children—Underweight children, not given special hygienic consideration, gained in pounds per inch of height at a rate equal to normal children. The study indicates that weight is of much less significance than continued gain or loss in weight.

ROBERTS, F. L. Growth of Children That Are Below Average Weight. J. A. M. A., 89:11 (Sept. 10), 1927.

Reasons for Tuberculosis Decline—Improved general educational and living standards are the most important factors in the lowered incidence of tuberculosis is the opinion of this British authority. He urges the need for more preventive education and case finding.

ROBERTSON, JOHN. Present Lines of Attack on Tuberculosis: Their Relative Value. Med. Off., 38:9 (Aug. 27), 1927.

Sunlight Therapy—How the children at Kenosha (Wis.) are gradually exposed to the sun is told in this story of the daily schedule of a preschool child camp.

SEILER, E. Sunshine Camps Speak for Themselves. Nation's Health, 9:9 (Sept.), 1927.

County Health Units—The phenomenal growth of the county health unit idea in the United States leads to an interesting discussion of ways and means for providing a health service for the county too poor actually to be able to support the minimum organization.

SMILLIE, W. G. Future of County Health Work in the United States. J. A. M. A., 89:13 (Sept. 24), 1927.

Local Health Administration—How the Dubugne County and City Department overcame public apathy and surmounted difficult situations is the theme of this story. Well told.

STEELSMITH, D. C. How a Joint Board of Health Overcame Obstacles. Nation's Health, 9:9 (Sept.), 1927.

Irradiated Dry Milk—Additional studies indicating that dry milk may be irradiated with ultra-violet rays so as to increase the antirachitic potency without destroying vitamins A and C.

SUPPLEE, G. C., and DOW, O. D. Antirachitic Properties of Irradiated Dry Milk. Am. J. Dis. Child., 34:3 (Sept.), 1927.

Health Work as a Career—The opportunities in British public health work are discussed in a paper setting forth the requirements for the job. The higher standards maintained in England suggest one of the ways for improving public health service here.

WHEATLEY, JAMES. The Public Health Service as a Career. Med. Off., 38:10 (Sept. 3), 1927.

Prevention of Rickets—A comparison of quartz, corning, and vitaglass for the radiation of children with rickets scores a victory for the

first two in this early report of the study. Surely this is an experiment worth extended investigation. Cod liver oil treatment is included as the alternative preventive measure.

WYMAN, E. T. The Prevention and Treatment of Rickets. Boston M. & S. J., 197:10 (Sept. 8), 1927.

KEY TO ABBREVIATIONS OF PUBLICATIONS

Am. J. Dis. Child.—American Journal of Diseases of Children, American Medical Association, 535 N. Dearborn St., Chicago, Ill.

Boston M. & S. J.—Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

J. A. M. A.—Journal of the American Medical Association, 535 N. Dearborn St., Chicago, Ill.

J. Biol. Chem.—Journal of Biological Chemistry, Rockefeller Institute for Medical Research, 66th Street and Avenue A, New York, N. Y.

J. Indust. Hyg.—Journal of Industrial Hygiene and Abstract of Literature, 55 Van Dyke St., Boston, Mass.

J. State Med.—Journal of State Medicine, 37 Russell Square, London.

Lancet.—The Lancet, 423 Strand, London.

Med. Off.—Medical Officer, 36 Whitefriars Street, London.

Nation's Health.—Nation's Health, The Modern Hospital Publishing Company, 22–24 E. Ontario Street, Chicago, Ill.

Pub. Health—Public Health, Society of Medical Officers of Health, 1 Upper Montague St., Russell Square, London.

Pub. Health Nurse—The Public Health Nurse. The National Organization for Public Health Nursing, 370 Seventh Avenue, New York, N. Y.

PUBLIC HEALTH NOTES

New York Commission on Ventilation Appointment—Dr. Rufus Cole, director of the Hospital of the Rockefeller Institute for Medical Research, has been appointed to membership on the New York Commission on Ventilation. Dr. Cole's advice on matters regarding the diagnosis of respiratory illnesses will be extremely helpful in research projects in ventilation which this body is conducting.

It will be recalled that from 1913 to 1917 the New York State Commission on Ventilation to which this commission is the successor carried on intensive laboratory investigations and studies in ventilation in some of the public schools of New York City, and that it collected a volume of data which was published in 1923. The body was reorganized about a year ago in order that there might be some disinterested group of scientific standing to maintain a bureau of information and to conduct further investigations on the technical, legal, and economic aspects of the problems of school ventilation. The Milbank Memorial Fund, which provided the money for its initial work, is financing its present program.

Memorial to Dr. Salmon—A committee has been formed to prepare a memorial to Dr. Thomas W. Salmon, professor of Psychiatry at Columbia University, and the first Medical Director of The National Committee for Mental Hygiene, who, in August was drowned while sailing on Long Island Sound.

The Chairman and Treasurer of the Committee are Dr. Frankwood E. Williams, Medical Director of The National Committee for Mental Hygiene, 370 Seventh Avenue, New York, N. Y., and Dr. Samuel W. Hamilton, Assistant Medical Director, Bloomingdale Hospital, White Plains. The function of the Committee is to consider plans proposed for a memorial and to receive funds for this purpose.

Mosquito Control by Airplane—Mosquito control by airplane is a possibility of the future. V. M. Ehlers, Texas State Sanitary Engineer, stated that recent experiments made by the U. S. Public Health Service in heavily infested malaria districts of the South, have caused serious consideration to be given by public health authorities to this mode of mosquito eradication.

In an experiment made by the Service and the South Carolina State Board of Health, 50 lbs. of Paris green with an equal quantity of soapstone, was distributed by airplane over the surface of a 500 acre, heavily infested pond. Some 22 hours after this dusting, 703 dips were made at different points in the pond, and only three living Anopheles larvae were found. —*Weekly News Letter*, Texas State Dept. of Health.

Dr. LeRoy A. Wilkes—On September 1 Dr. Wilkes returned to the American Child Health Association as Director of the Medical Service Division. During the past year Dr. Wilkes has been at the University of Texas at Austin reorganizing the student health service

PUBLIC HEALTH ADMINISTRATION

HENRY F. VAUGHAN, D.P.H.

School Closure—In the September issue of the *Commonhealth* published by the Massachusetts Department of Public Health, Clarence L. Scammon and Merrill E. Champion discuss outbreaks of contagious disease and their relation to school closure.

In general, they state, that the force which compels the health authorities to close schools during periods of epidemics is the pressure of public opinion. They inquire as to what factors ordinarily crystallize public opinion. The people themselves with their neighborhood gossip; the school authorities, including the superintendent and every teacher; the health authorities, and the community physician; and last but no means least, the attitude of the press—all of these go far toward the solidifying of public opinion. They, therefore, conclude that the closing of schools in time of epidemic or threatened epidemic is usually the result of well intentioned but poorly informed public opinion.

The authors urge that the schools should not be closed. The health officer should seek out the sources of infection in his community. With the schools open this task is much easier from every possible point of view than with them closed. The family, the child, and the community physician can be more readily interviewed with regard to suspicious cases of contagion. Every child entering school with the slightest suspicious symptoms can be segregated by the school physician, and the personnel of the health department can be increased to handle the situation.

Unfortunately there is too often a lack of coöperation between the school committee and the board of health with respect to procedure to be followed. With schools open and school and health departments coöperating, a daily watch may be kept on communicable disease suspects both in the school and at home.

Diphtheria in New York City—The *Weekly Bulletin* of the New York City Health Department for September 10, comments on the increase in diphtheria morbidity and mortality in that city during the first 6 months of 1927. The attention of the reader is directed to the decrease in the number of reported cases and deaths from 1919 through 1926. The yearly incidence, although showing a downward trend, is not without fluctuation, and it is quite probable that the present year is one in which an increase in diphtheria prevalence would naturally be anticipated.

A special study has been made of 150 cases of children reported as having diphtheria, to determine the instances in which toxin-antitoxin had been administered. Of this number only 3 gave a history of having had some toxin-antitoxin, and in none of these cases had the 3 months elapsed which is usually required for immunity to develop. One of the 3 children received only 2 injections. It is further stated that it is reasonably certain that 1 other case which had been given toxin-antitoxin did not have clinical diphtheria.

This study should prove of great value to the health administrator who will be confronted with the prepared propaganda now emanating from various sources endeavoring to portray the picture that in spite of its immunization program diphtheria is increasing in New York City.

County Health Work—A discussion on the Future of County Health Work in the United States as presented by Dr. W. G. Smillie at the spring meeting of the American Medical Association appears in the *Journal of the American Medical Association* for September 24, 1927. Dr. Smillie calls the reader's attention to the fact that on December 31, 1926, there were 341 county health units in the United States scattered through 34 states. Excluding New England there are only 9 states that do not possess some full-time county health units.

The author states that 85 per cent of the county health units in 20 states have been established in counties with a high economic status. He includes in such group those counties having a total annual income of more than $5,000,000. Since the usual county health unit budget receives about $5,000 from official county

funds, one may estimate roughly that about $1 of county funds out of each $1,000 of total annual income has been spent for the purpose of maintaining a county health unit. The author, therefore, feels justified in the conclusion that a county with a population of from 25 to 50 persons per square mile will be able to support a full-time county health unit. In the poorer counties he feels that some system of state aid is essential to the success of a well rounded rural health program.

The Measurement of Public Health Work—A reprint from the Annual Report of the Milbank Memorial Fund contains an introductory discussion by Edgar Sydenstricker on the measurement of public health work. The subject matter is pertinent in view of the two municipal health demonstrations being supported in New York State by the Milbank Fund. The author concludes among some of the underlying principles governing the measurement of public health work:

1. Specific activities, rather than the program as a whole, should be measured first. A general health demonstration or a public health administration should not be regarded primarily as a single undertaking or experiment, but rather as a group of experiments, each of which had a definite objective; and the results of each should be measured by the most sensitive index that it is possible to employ.

2. The objectives and methods of a public health effort should be clearly defined.

3. Principles of experimentation should be applied.

4. The use of "experimental" and "control" groups or areas is essential.

LABORATORY

C. C. YOUNG

SANITARY SIGNIFICANCE OF DIFFERENTIAL TESTS FOR THE COLI-AEROGENES GROUP

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OF THE various differential methods which have been applied within recent years to the coli-aerogenes group, only three have been tried to any extent in practical water examination. These are the methyl red, Voges-Proskauer and citrate tests.

Previous work has shown that by the use of these tests the group may be subdivided as follows:

	Chief Source	Differential Tests MR	VP	citrate
Bact. coli and close allies.	feces	+	—	—
Intermediate section.....	soil	+	—	+
Aerogenes-cloacae section..	soil	—	+	+

The coli and the aerogenes-cloacae sections are well known and reviews have been given elsewhere.[15, 20] The so-called intermediate type is a more recent addition,[12, 13] the creation of which seems justified because of the finding in apparently unpolluted soils of MR+ cultures which utilize citrate in contrast to the citrate negative fecal coli. These MR+ citrate+ cultures, while not so common as the aerogenes-cloacae types, were nevertheless found in considerable numbers in some soils, and they have been tentatively differentiated from the other two sections.

With the knowledge of certain characteristics which set apart fecal organisms of the colon group from the majority of those found in soil, it might appear at first glance that the application to the sanitary examination of water would offer no difficulties. Experience, however, has been quite the contrary and in spite of a very considerable amount of work the usefulness of the differential tests is still a disputed point. A number have attacked this problem by comparing the proportions of coli and aerogenes types found in water supplies of different sanitary quality, as shown either by sanitary survey or a general knowledge of local conditions. Data of this sort should throw light on the question whether these different types or sec-

TABLE I

SUMMARY OF THE METHYL RED, VOGES-PROSKAUER, AND CITRATE DIFFERENTIATION APPLIED TO CULTURES FROM VARIOUS WATER SUPPLIES

Results obtained in the United States

Investigator	Locality	Character of Water supply	Number of cultures	Percentage distribution MR+ VP−	MR− VP+	citrate −	citrate +
Greenfield (1916)	Kansas	Ground	158	65.0	35.0		
		Treated	131	70.0	30.0		
		Raw	116	76.0	24.0		
Greenfield & Skourup (1917)	Kansas	Raw: rain	117	37.6	62.4		
		dry	108	62.0	38.0		
		Treated: rain	116	31.8	68.2		
		dry	134	54.5	45.5		
		Tap: rain	193	33.6	67.4		
		dry	194	65.8	34.2		
Rogers (1918)	Maine and Washington, D. C.	Various, some polluted, others good quality	134	40.3	59.7		
Stokes (1919)	Maryland	Various, treated and untreated	528	36.4	63.6		
		Sewage	31	58.1	41.9		
Buhlman and Sohn (1924)	Cincinnati, Ohio	Various	1223	61.0	29.5*		
Winslow and Cohen (1918)	New Haven, Conn.	Unpolluted	80	76.0	24.0		
		Stored raw	81	85.0	15.0		
		Polluted	94	76.0	23.0*		
Kauer (1924)	Washington, D. C.	High quality	90	73.3*		16.7	
		Polluted (Potomac River)	107	80.4		64.5	
E. R. Houston (1923)	Austin, Texas	Various	154	93.5	6.3		
Lewis (1926)	Barton Spr., Texas	Supposedly good quality	154	79.3	20.7		
Lewis and Pittman (1927)	Texas	High quality	237	78.0	17.7*	34.1	
		Polluted	83	86.7	12.0*	73.5	
Berry and Ey (1926)	Ohio	Wells: good	93	72.0*			
		fair	117	76.9*			
		poor	127	86.6*			

* A small percentage of atypical cultures also found.

tions of the colon group actually make their way into water supplies in such a manner that the determinations of their relative proportions will be significant.

A number of investigations of this nature have now been reported and it should be worth while to summarize the results. Accordingly, all available reports have been reviewed and an effort has been made to bring out the chief points in the following tables. Before examining these in detail, however, it should be understood that certain facts cannot be brought out fully, if at all, in tabular form, and for this reason the results may not be strictly comparable. In the first place, the sanitary quality of the water under investigation is not always clearly stated, or all results from various classes of water may be grouped together. Also, the data have been secured at different times of the year, under widely different conditions and in many different localities. It is also important to bear in mind that different methods were employed for isolation of the colon group cultures, and this may affect the proportions of the types obtained. In most instances, lactose broth or bile enrichment was followed by picking colonies from Endo or eosinmethylene blue plates. Here, again, there is no agreement as to the number of colonies picked from any one plate. In a few cases direct plating was used for isolation. In view of these many variable factors it is not surprising that different conclusions have been reached.

Table I summarizes the data from the United States. Referring to this let us first consider the results given by the methyl red and Voges-Proskauer tests. Do they show a correlation with the sanitary quality of the water? With the exceptions of Rogers, Stokes, and to some extent Greenfield and Skourup, all have reported a higher percentage of the MR+ VP− section. This holds true for different waters

and for widely different sections of the country. Greenfield and Skourup bring out a certain correlation in that their results depended upon rainfall. In time of drought with little surface wash and with evident pollution the MR+ section predominated. After rain the aerogenes section gained the ascendency. Rogers also obtained a correlation between these tests and the degree of pollution in several small streams. It is impossible, however, to give his results in detail here. In contrast to the above, Winslow and Cohen found that the MR and VP tests failed to bring out any difference between water supplies of widely different sanitary character. Others have followed the same line of investigation with essentially similar results, and it is quite noteworthy that approximately the same proportion of MR+VP— cultures should be found in waters of widely different quality in the vicinity of New Haven, Conn., in the vicinity of Washington, D. C., and in Texas and Ohio.

The test of citrate utilization has been compared with the other tests and with the sanitary quality of the water in only a few instances. Since this test serves to set apart certain MR+ organisms found in soil there is a possibility that it might correlate more closely with the sanitary survey. Such was found to be the case in a study of waters of different sanitary quality in the vicinity of Washington, D. C. From waters of high quality 16.7 per cent of the colon group cultures were citrate negative, whereas 64.5 per cent from polluted water were citrate negative. This is a much greater difference than was brought out by the MR and VP tests, which showed 73.3 and 80.4 per cent of MR+VP— cultures. Very recently, Lewis and Pittman have reported somewhat similar results in Texas.

Table II gives the data on these tests which have been reported from other countries. Referring first to the methyl red and Voges-Proskauer tests, we see that the MR+VP— section was found to be the predominating type and the results are quite similar to most of those obtained in this country. Cunningham and Raghavachari[4] state that pollution is very widespread in their country and that the water supplies in many instances are little better than

TABLE II

SUMMARY OF THE METHYL RED, VOGES PROSKAUER, AND CITRATE DIFFERENTIATION APPLIED TO CULTURES FROM VARIOUS WATER SUPPLIES

Results obtained in other countries

Investigator	Locality	Character of water supply	Number of cultures	Percentage distribution MR+ VP—	MR— VP+	citrate —	citrate +
A. C. Houston (1911)	England	Raw	243		12.9†		
		Stored	133		5.3		
		Stored & Filtered	156		3.2		
Wood (1919)	England	Various	231	66.7	33.3		
Bardsley (1926)	England	Springs, wells and rivers; majority treated	1441	87.2	11.1*		
Cunningham & Raghavachari (1924)	India	Unfiltered: springs & wells	1500	68.1	31.9		
		impounded surface	755	74.5	25.5		
		rivers	190	69.4	30.6		
Cunningham & Raghavachari (1926)	India	Filtered	2320	70.2	29.8		
		Unfiltered	500	80.0	20.0		
Raghavachari (1926)	India	Unfiltered: springs & wells	594	68.5	31.5	67.2	32.8
		impounded surface	370	72.4	27.6	72.4	27.6
		river	110	69.1	30.9	69.1	30.9
		Filtered	500	61.6	38.4	50.6	49.4
Pawan (1925)	Trinidad	High quality	240	42.5	57.5	18.7	81.3
		Polluted	220	87.3	6.3*	90.9	9.1
Pawan (1926)	Trinidad						
	Chorah R.	Unpolluted	40			0.0	100.0
	Lopinot R.	Good	20			5.0	95.0
		Polluted in varying degrees	120			79.2	20.8

† On basis of Voges-Proskauer reaction only
* A small percentage of atypical cultures also found

diluted sewage, so that it may be unfair to expect a great difference between the various classes of water. Pawan,[18] in Trinidad, found some difference between the classes of water upon which he reports, though evidently not so much as expected, for he states that his work substantiates that reported from this country. The citrate test was also used in several of these studies. Raghavachari found it to be of little if any value in India. Pawan on the other hand apparently regards it as useful. He found that it correlated more closely with the quality of the water, as brought out by sanitary survey, than did the other differential tests. Moreover, many MR+ organisms whose frequent appearance in some waters could not be accounted for on the basis of the sanitary survey were found to be citrate+ and thus distinct from intestinal coli.

As already pointed out, these results were obtained under widely different conditions and with different methods of technic, so that they are not strictly comparable, although there would seem to be sufficient data at hand to give one a broad view of the situation. It is evident that the MR and VP tests have been tried fairly extensively in different parts of the world and that many investigators have failed to find any striking correlation between the results of these tests and the quality of the various water supplies. On the whole they appear to have been of little help. The other side of the question is apparent also, for many hesitate to condemn these tests even after obtaining such results. The citrate test has not been used so extensively. Of the five reports on it four bring out some degree of correlation with the sanitary quality of the water. The remaining one found it to be of apparently no value.

QUESTION OF THE USE OF THE DIFFERENTIAL TESTS

Having considered the foregoing results, one may ask whether the differential tests are entitled to a place in our scheme of water examination. Undoubtedly no general answer can be given to this question which will fit all circumstances and different types of water.

In the first place it must be borne in mind that certain details of technic or procedure may account for the lack of correlation with the character of the water supply. The way in which cultures are isolated for testing may be responsible in large measure. We know little or nothing of the relative rates of growth of the fecal and soil cultures in lactose broth, of their effect upon each other, or of the effect of other miscellaneous water organisms upon them. Obviously, some may be overgrown and thus only one type is isolated and tested. In judging the results of practical application of these tests it is evident that the usual method of selecting cultures may not be the best and it may not give us a true picture of actual proportions in the water. Indeed, this seems to be one of the chief problems confronting the practical use of these tests.

In addition to a consideration of methods, other questions have been raised. It has been pointed out by many that surface washings may be undesirable even though strictly fecal organisms are not found and that the presence of colon group organisms beyond certain limits, irrespective of type, shows the existence of undesirable conditions. Hence the differential tests are regarded as unnecessary. On the other hand, there are a considerable number of reports of the finding of colon cultures, sometimes in fairly considerable numbers, where no source of contamination could be found and where the water was judged to be of high sanitary quality. In many instances these results have been dismissed with the assumption of undiscovered sources of contamination. While this may or may not be the case, the differential tests might aid in interpretation of such results.

In the writer's experience the differential tests have been of most value when applied to raw water supplies of at least fairly good quality. Aside from experimental work, there would seem to be nothing to be gained by applying these tests to a badly polluted water. For example, if colon group organisms are found in 0.01 or 0.001 c.c. amounts it would seem that for practical purposes the differential tests could add little to our information and would scarcely be needed to judge the quality of the water supply.

In contrast to this the differential tests and especially the citrate test appear to be of value in judging water supplies which while not obviously polluted are nevertheless for one reason or another considered to be of questionable quality. The springs and small brooks mentioned in a former publication[14] illustrate the point. Upon sanitary survey they showed no source of pollution at all and yet lactose fermenting colon group organisms were obtained from 10 c.c. amounts almost regularly

and often from 1 c.c. amounts. Upon application of the MR and VP tests the majority of the cultures were MR+ and VP—. Upon application of the citrate test most of them were citrate+ and in this respect could be distinguished from the fecal *Bact. coli.* In this case the citrate test correlated with the sanitary survey and was apparently of value in judging the quality of the water. The recent reports of Pawan[18, 19] and of Lewis and Pittman[17] seem to confirm this. Houston[10] expressed the opinion that the citrate test might be of considerable value in judging new and doubtful sources of supply. On London waters, however, the test apparently added nothing to the ordinary examination. He states that in general it confirmed the significance of lactose+ indol+ cultures, but sometimes failed to exclude nontypical varieties.

The application of the differential tests to treated or filtered waters presents another problem. Will they give us sufficient information to justify the additional time and labor involved in performing them? This can be answered only by careful study by water works operators. As the matter stands at present it would seem that on the whole there is less need for them here than in the examination of raw waters. In the process of water purification the nonsporing lactose fermenters are used to measure the efficiency of the treatment. By their absence we judge the absence of pathogenes. Although some have found aerogenes to be slightly more resistant to chlorination than coli (and still more resistant than the typhoid bacillus), nevertheless the difference is on the whole not great, and since a margin of safety is always desired, the procedure of aiming at elimination of all colon organisms would seem to be the proper one. If, however, the differential tests are applied the writer concurs with Hinman[8] that a more adverse report is justified if the organisms present beyond permissible limits are found to give the differential tests characteristic of the *Bact. coli* of fecal origin.

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VITAL STATISTICS

LOUIS I. DUBLIN, PH.D.

The Health of the American Negro—In spite of the extremely high death rate of the American negro, the negro population has increased steadily from one-half million in 1776 to ten and one-half millions, or 9.9 per cent of the total population of the United States, in 1920. This increase is chiefly due to the great fertility of the negroes which gave an excess of births over deaths of not less than 20 per 1,000 during the slavery period. Since that time the negro birth rate has always exceeded that of the whites and in 1924 it was 27.4 as compared with 22.2 for the whites.

The steady improvement in sanitary conditions, especially in recent years, has lessened the death rate from 35 or 40 in Reconstruction days to about 17 at the present time. The death rate of more than 2,000,000 negroes insured in the Industrial Department of the Metropolitan Life Insurance Co. declined 16.3 per cent in 16 years, or from 17.5 in 1911 to 14.6 in 1926. This decrease is particularly impressive because the insured negroes are almost entirely from urban communities where health conditions among negroes have been less satisfactory than in rural districts.

Marked improvement has taken place in infant and child mortality, the reductions ranging from 31 per cent for measles to more than 50 per cent for diarrheal complaints in 16 years. There are also large decreases in the death rate from typhoid fever, pneumonia, and especially tuberculosis for which a drop of 44 per cent was recorded between 1911 and 1926. Out of every 100,000 living colored persons there were only 235 deaths from tuberculosis in 1926 as compared with 418 in 1911. Nevertheless, 1 out of every 6 colored persons still dies of the disease. The great prevalence of syphilitic infection and the high death rate from the chronic degenerative diseases and cancer are unfavorable features which are not showing any improvement.

Due to the rather primitive sanitary conditions under which many negroes still live, their average expectation of life is only about 46 years, about that of the white Americans only 30 years ago. For male negroes, however, who reach the age of 50 the expectation is under one year less than that of the white male, and a little over two years less for colored women.—Louis I. Dublin, *Am. Mercury*, 12:37–45 (Sept.), 1927 (ab. in *Stat. Bull.*, 8:7–9 (Aug.), 1927).

Decline in Suicides—The general tendency of suicides, in youth, is downward, not upward, as the public has been led to fear. The death rate from suicide has been decreasing at all ages; but the rate of decrease has been different for the various age groups, and more favorable relatively at the younger ages. The significance of the differences observed is best seen by reference to the death rates from suicide in the period of years 1909 to 1924 which have been plotted separately for the age groups 10–19, 20–29, 30–59, and 60 and over. Straight line trends, fitted by the method of least squares to the series 1909 to 1924, show the following characteristic: If they are extended to meet the line of zero death rate, then the first trend line to reach this level is that for the youngest age group 10–19. This runs to zero about the year 1941. The trend for the age group 20–29 does not meet the zero level until 1946, the trend line for ages 30–59 not until 1966, and the trend line for ages 60 and over not until the year 2078.

It is not, of course, to be expected that present day downward trends will continue indefinitely. But the trend lines exhibited are characteristic of the present tendency; and it is clear that the showing is most favorable for the youngest age group, and that less and less rapid improvement, in relative proportion, is shown as we ascend the age scale. The conclusion seems to be that suicide among the older persons is occasioned by stresses of a more fundamental and irremediable character than in the case of younger persons, and, hence, is less amenable to reduction.—*Stat. Bull.*, 8:1–3 (Aug.), 1927.

Syphilis Among Negroes in the South—Syphilitic infection was found in approximately

20 per cent of the negroes seeking admission to the outpatient department and medical wards of the Grady Hospital of Atlanta. Syphilis of the cardiovascular and central nervous systems made up 54 per cent of the total 662 cases of syphilitic infection. About 87 per cent of these patients had had no treatment for their primary infection other than perhaps the ordinary home remedies or a few ointments prescribed by some local druggists. The remaining 13 per cent had some very inadequate treatment while only a few had any injections of arsphenamine or its allies.

There were 98 cases of aortic insufficiency, 79 of them occurring among the males and the same number among individuals under 50 years of age. In the entire 98 cases not a single person lived more than 18 months after a diagnosis was made. Of 46 aneurysms, 40 occurred before the age of 50, and 75 per cent were in the males. Twenty-eight of these patients died of rupture on the first or subsequent admission. Of the 58 cases of syphilis with arteriosclerosis, hypertension, hypertrophy and dilatation, 33 occurred before age 50, and 28 of the total died on first or subsequent admissions. Syphilitic heart disease composing 39.3 per cent of the syphilitic cases is unusually high and very distressing because many of the patients are seen only when it is too late to help them.—James E. Paullin, Hal M. Davison and R. Hugh Wood, *Boston M. & S. J.*, 197:345–350 (Sept.), 1927.

Infant Mortality in Detroit—Detroit, for years, has had one of the highest infant mortality rates as well as the highest birth rate among the large American cities, thus seeming to confirm the belief that the two are closely connected. The infant death rate, however, has dropped from 103 in 1915 to 78 in 1924, but rose again to 85 in 1926. This decline has been chiefly due to the decrease of 37 per cent in gastro-intestinal diseases while the deaths from respiratory diseases and other causes have increased. There has been practically no change in neonatal mortality but there was a decrease from 71 per 1,000 births to 43 in 1926 in the rate of the group over one month of age.

The infant mortality rate by races in Detroit in 1926 is as follows: Russians, 57; Belgians, 64; Canadians, 76; Italians, 79; Native whites, 82; Austrians, Hungarians and Bohemians, 84; British, 85; Germans, 97; Polish, 103; negroes, 108. The striking variations in infant mortality among the different racial groups is due, mainly, to the influence of diseases of the respiratory system and gastro-intestinal causes. The negroes and Italians have the highest rates from respiratory infections and the negroes and Polish groups the highest from gastro-intestinal diseases. The Russians, among whom breast feeding is perhaps more common, have the lowest total infant mortality and the lowest rate from gastro-intestinal diseases; nevertheless, their early infancy rate is almost as high as that of the negroes whose total rate is the highest in the city. In the Mexican group there were 147 births with 46 deaths under 1 year, a rate of 313. Over half of these deaths (54 per cent) were due to respiratory diseases, congenital causes and premature birth, probably because of the poor environment, ignorance and poverty of these people.

The number of deaths of infants varied according to the occupation of the father. Almost half, or 40.3 per cent, were among the skilled labor class; 36.8 in unskilled labor; 11.4 in trade or business; 8.3 non-professional service; 2.6 in professional service, and 0.6 among farmers.—Detroit *City Health Bulletin*, 10:3-10 (May and June), 1927.

Patients in Hospitals for Mental Disease—The Department of Commerce has made a preliminary report of the results of the census of state and federal hospitals for mental disease in 1926. Complete returns from 30 states, covering 105 hospitals, showed 36,936 first admissions in 1926 as compared with 34,362 in 1922, an increase of 7.5 per cent. The number of first admissions has increased only a little more rapidly than the general population, from 46.8 per 100,000 in 1922 to 47.3 in 1926.

The number of patients in the hospitals at a given date is a good indication of the extent to which public provision has been made for the treatment of mental patients. In the 30 states covered by the report the number of mental patients increased steadily from 156,454 or 218.5 per 100,000 of the general population on January 1, 1922, to 178,353 or 226.9 on January 1, 1927.

A large increase in the number of first admissions to hospitals in the different states does not necessarily mean a great increase of mental disease in those states. Such an increase often represents an expansion of the capacities of the hospitals and improvement in the machinery for bringing mental cases under the care of the hospitals. New Hampshire and the District of Columbia had the highest rate of first ad-

missions in 1926, 82.6 and 121.4 per 100,000 respectively. In 1922 the rates were 68.5 for New Hampshire and 188.9 for District of Columbia. Pennsylvania, South Dakota, Michigan and Georgia had the lowest rates, 21.8, 29.2, 29.9 and 30.4 respectively. These figures are an increase from 16.9, 25.5 and 21.9 for Pennsylvania, South Dakota and Georgia in 1922. Michigan's rate decreased from 31.5 in 1922.

The District of Columbia, New York and New Hampshire had the highest rates per 100,000 of general population of patients present in state hospitals on January 1, 1927. These rates were 810.1, 383.1 and 343.6 respectively. Pennsylvania's rate of 125.3 was the lowest of the 30 states.—Dept. of Commerce Press Summary, *Census of Institutions*, 1926, Sept. 26, 1927.

Infant Mortality in East Prussia, 1904–1926—There has been a large decrease in infant mortality in Prussia during the past 25 years, although the rate is still quite high. In 1926 all parts of the country except Upper Silesia, with a rate of 140 per 1,000, had lower infant mortality than the lowest rate, in 1904, of 129 for Hesse-Nassau. This province in 1926 again had the lowest rate, 69 per 1,000, or only a little more than half that of 1904.

In East Prussia the rate of 176 in 1904 increased to 189 in 1910. By 1913 it dropped to 185 but there was no marked decrease until after the war. In 1924 the rate declined to 125 and in 1925 to 116, but in 1926 it rose to 120, one of the highest rates for any province of Prussia.—*J. A. M. A.*, 89:1165 (Oct. 1), 1927.

Infant Mortality in Dusseldorf, Germany—Infant mortality no longer attains a "summer peak," but, instead, a distinct increase of deaths in winter in children under 1 year of age is observed. This marked change, as Professor Schlossmann of Dusseldorf has recently brought out in the Klinische Wochenschrift, is becoming constantly more apparent. In 1925 in the government district of Dusseldorf there were 168 fewer infant deaths per 10,000 than in 1913, but of children under 1 year of age, in 1925 relatively more died than in 1913. In 1913, only a third of all infant deaths occurred during the first month; in 1925, however, almost half. With the second month of life, the mortality in 1925 dropped so rapidly, as compared with 1913, that the mortality for the year as a whole fell below that of 1913. In 1925, in spite of the fact that there were 30,499 fewer children born and that 4,725 fewer died, 28 more children died on the first day of life. Also the second and the third day showed a greater number of deaths than in 1913. Whereas the mortality on the first day of life in 1913 was much lower in the rural districts than in the urban centers, in 1925 the reverse was true. The reason for this lay chiefly in the fact that the care of illegitimate children was less efficient.

There is no convincing explanation of the increased mortality of infants during the first days of life. Schlossmann thinks that medical care can accomplish relatively little, since, during the first few days, the life of the child depends mainly on the midwife. He calls attention to the fact that in Germany, about 5 per cent of all the women who give birth to children work up to within a few days of their confinement, and many up to the actual day. A law has, however, been recently passed that will doubtless do away with this condition.—*J. A. M. A.*, 89:1075 (Sept. 24), 1927.

Marriage Prospects of Women in Industry—Industrial employment for women does not seem to be a hindrance to marriage, for, according to the official data of the Bavarian statistical bureau, 81.5 per cent of the women marrying in 1924 had been engaged in some earning capacity. Only 40.8 per cent of the women in industry are married according to the general industrial census of Bavaria, but this census included a large number of girls who are not of marriageable age.

The percentage of marriages among female domestic workers seems to be greater than in other occupations. Of the women engaged in agricultural pursuits, 1.8 per cent were married in 1924; 3.2 per cent of those employed in the industries, in the narrower sense and 3.3 per cent of the women commercially employed married in the same year. Seventy-one per cent of the independent landowners married daughters or relatives of other landowners, 90 per cent of whom had been previously employed on the estates of their parents. Forty-nine per cent of agricultural laborers married agricultural workers, 25 per cent of whom were relatives of landowners and 6 per cent previous landowners. Twenty-five per cent of independent industrialists married daughters of farmers who had previously worked on the farms of their parents; 21 per cent married employes and workers; 7 per cent married women independently employed in trade and industry; 20.5 per cent married members of families engaged in various callings, 10 per cent married domestic

workers and about 20 per cent married women not gainfully employed. Forty-one per cent of mercantile employes married women employed in trade and industry; 10 per cent married employes; 7 per cent married women domestically employed on the farms of their parents; 23 per cent married members of families who were not gainfully employed. Only 5 per cent of independent agriculturists and 25 per cent of independent merchants married women not gainfully employed.

Two-thirds of all textile workers married industrial employes whereas miners, foundry men and peat-cutters, workers in the stone and earth industries and in the building trades preferred to a great extent women from the agricultural districts. A large percentage of workmen in the chemical industries married domestic workers. Fifty-two per cent of the physicians, 60 per cent of the teachers and 75 per cent of authors and artists and 41 per cent of the higher officials and army officers marry women who have been industrially employed. Seventy-five per cent of the middle class officials and noncommissioned officers and 83 per cent of petty officers and enlisted men married women industrially engaged. The reason for the increase of marriage among women in industry doubtless lies in the fact that the increasing number of women in industry has broken down the prejudices against gainful employment for women.—*J. A. M. A.*, 89:1165 (Oct. 1), 1927.

PUBLIC HEALTH ENGINEERING

ARTHUR P. MILLER, C.E.

Sludge Digestion—Reaction and Control—The purpose of this paper, including the discussion of the same by Almon L. Fales, H. W. Clark, Edmund B. Besselievre and Willem Rudolfs, is to discuss the changes and reactions that take place during the progress of sludge digestion and their apparent relation to digestion activities, and also to show the effect of reaction adjustment by means of certain alkaline substances upon the rate of digestion. The influence of temperature is not considered. The discussion of reaction and its control is hinged upon experimental studies and is, therefore, subject to the limitations of the experiment which are set forth in the paper. The term "reaction" is used to describe the acidity or alkalinity of the sludge, and is reported quantitatively as hydrogen-ion concentration expressed as pH.

Parts of two series of experiments (Series III and V of the Harvard Studies) are discussed in the paper. Both deal with the digestion at 20° C. of mixtures of fresh sewage solids with well-digested Imhoff sludge. The main purpose of the experiments was to obtain information on the nature of progressive sludge digestion under various conditions of pH control. A secondary object was to determine whether sterilization of the fresh sludge would exert an influence upon the course of digestion.

Data on the experimental technic are given. The fresh sewage solids used in the experiments were obtained from the Brockton, Mass., sewage disposal works. The Imhoff sludge was drawn from the Fitchburg, Mass., tanks. Gas production was chosen as the criterion of the progress of digestion. The sludge mixtures were placed in 4-liter bottles so equipped that the gas given off during digestion could be collected for measurement and analysis. A sketch of the apparatus is given.

The article includes a description of the results and is illustrated with a number of graphs. Normal digestion or digestion without reaction control which serves as a standard on the basis of which the pH adjustment is evaluated is taken up. The results achieved by adjustment with lime, which has frequently been made use of in sewage treatment as a means of chemical precipitation or as a corrective of Imhoff tank trouble, is described. Likewise, adjustments with marble dust or calcium carbonate, dolomite dust containing calcium and magnesium carbonates; and with sodium hydroxide and sodium carbonate are taken up. A comparison of the results is given and discussed. Likewise, the nature of sludge digestion, effect of reaction control on the rate of digestion and the practical application of reaction control to sludge digestion are considered.

The results of the experiments are summarized as follows: (1) The course of pH uncontrolled sludge digestion as measured by rate of gas production, reaction changes, and composition of the gases was fairly constant in nature but varied in time in accordance with the character of the sludge. (2) Reaction adjustment was not beneficial unless accomplished by the use of suitable chemicals. Lime, marble, dolomite and calcium carbonate produced an accelerated digestion. Soda ash and caustic soda retarded the progress of digestion. (3) Calcium carbonate yielded the best results. Its ease of application and its self-regulating character recommend it particularly for use in small treatment works. (4) The period of digestion was reduced by suitable reaction control to one-third the normal period required. The shortest time observed for 90 per cent digestion at 20° C. was 6 weeks. (5) The quantity of adjusting chemical required in terms of calcium carbonate varied from 100 to 500 lbs. per m.g. of sewage. (6) The lower critical pH for methane fermentation was near 6.8, the optimum in the vicinity of 7.2. (7) The yield of methane was about 8 cu. ft. per lb. of fresh organic matter. For the city of Brockton this would mean an available yield of methane equal to 7,900 cu. ft. per m.g. of sewage, or ⅓ cu. ft. per capita per day.—Gordon M. Fair and C. L. Carlson, *J. Boston Soc. Civil Engrs.*, 14:82 (Feb.) 1927. Abstr. E. C. Sullivan.

Chlorine Gas in the Technique of Sewage Purification—Because of the impoverished condition of the country, Germany is forced to forego the construction of complete sewage treatment works; chlorine gas disinfection appears to the author to supply the needs of health protection. A review of the properties and applications of chlorine to this end are presented in some detail.

The complex action of chlorine gas and of hypochlorites upon other substances in aqueous solution is discussed. "Materials in gaseous form are destroyed more rapidly by chlorine than are liquids, and these, in turn, more rapidly than solids." In addition to oxidation of organic matter, reaction products are probably generated by chlorine which are effective as plant and animal poisons even after the exhaustion of the free chlorine content.

For many reasons given by the author, chlorine gas is to be preferred to hypochlorites for sewage disinfection, and is accordingly coming into more general use. The development of the indirect method of chlorine application (that is, the formation first of chlorine water by solution of measured amounts of gas to water, and then addition of this solution to the water to be treated) both in America and Germany, is outlined. This method is now used exclusively for treatment of municipal sewage by chlorine.

The history of sewage disinfection is briefly sketched. Extensive experiments of the Emscher Corporation have indicated that to produce a disinfection resulting in a 99 per cent reduction of the bacteria (growing on gelatin plates) in concentrated fresh municipal sewage which has not as yet decayed to any appreciable extent, the following additions of chlorine proved necessary: (a) For crude, unclarified sewage containing fecal matter, 25 to 30 g. per cu.m.; (b) for sewage briefly (½ hour) clarified by sedimentation, 15 to 20 g. per cu.m.; (c) for well clarified sewage, 10 to 15 g. per cu.m.

If the sewage is stale, larger amounts of chlorine are required. In all cases a period of reaction is essential, generally from 30 to 15 minutes, depending on concentration, temperature, etc. Offensive odors of stale sewage, usually due to formation of sulphur compounds, may also be eliminated by chlorine treatment.

Chlorination of sewage as a substitute for biological treatment is discussed at length. Delay of decomposition may be obtained by chlorine frequently for a period long enough for the treated sewage to reach sufficiently large bodies of diluting water without creation of nuisance. However, "chlorinated sewage cannot be considered the equal of effectually biologically purified effluents." Chlorine in combination with biological beds and rapid sewage filters, and for clarification of sludge is also discussed.—Dr. H. Bach, *Technisches Gemeindeblatt*, 28:159, 1925. Abstr. J. K. Hoskins.

Recent Results from Separate Sludge Digestion Experiments—At Plainfield, N. J., there was constructed at the Sewage Disposal Plant as a consequence of considerable experimentation both in the laboratory and at the plant to relieve conditions, two 16-sided concrete tanks for separate sludge digestion, supplied with floating covers and facilities for adjusting the fresh solids with lime and heating the sludge. Five thousand and five hundred cu. ft. of ripe sludge first was pumped into the tank from the Imhoff tanks for seeding. Fresh

solids, obtained from an Imhoff tank which was used as a preliminary settling tank were added every two or three days for a period of 60 days after the tank had been in operation and thereafter the laboratory determinations were commenced. These fresh solids were adjusted with dry hydrated lime to a pH value of 7.3. Determinations included the amount of gas, the composition of the gas, the pH value, the total acidity, the total alkalinity, the NH3 nitrogen, the solids and the ash. Bacteriological counts were made and an automatic record was kept of the temperature in the tank and of the air.

The conclusions which might be drawn from the experiments are as follows: (1) Since it was possible with 1 pound of soft coal per 1,000 lbs. of sludge to raise the temperature of the sludge 0.4° F. per day, it probably will cost less to maintain a higher temperature when heating is begun as soon as the temperature drops. (2) If really fresh solids are added every day, the amount of lime necessary for adjustment will be small because the material in the tank in a proper biological balance condition will maintain an optimum reaction for digestion. (3) A properly insulated separate digestion tank under good control is at least as efficient as an Imhoff tank; consequently sludge digestion capacity will be about equal for both types of tanks.

This article is obtained from *Paper No. 323* of the Journal Series, New Jersey Agricultural Experiment Station, Department of Sewage Disposal, presented before the American Society for Municipal Improvements.—Willem Rudolfs, *Pub. Works*, 58:50 (Feb.), 1927. Abstr. E. C. Sullivan.

Proposed Legislation in Connection with Stream Pollution and the Formation of a Stream Conservation Board—The author, realizing that "there is need for the establishment of a firm and definite state policy with regard to pollution for the adoption by the state of just and correct principles of legislation and for the more extensive coöperation between industry and the state," has prepared this study for the consideration of the state health officer.

The author suggests: (1) The enactment of a law similar to that in force in Kansas for the control of stream pollution, and (2) the creation of a "Stream Conservation Board," patterned after the Pennsylvania Sanitary Water Board, to have administrative charge of the stream control laws. Proposed drafts of these legislative acts are given, followed by a discussion of their features. The organization and policies of the Pennsylvania Sanitary Water Board are reviewed in some detail, as well as the principles of stream conservation recommended by the committee on "Sanitary Conservation of Streams" of the Conference of State Sanitary Engineers.—G. H. Hazlehurst. Mimeographed ms. 48 pp. Abstr. J. K. Hoskins.

Chemical Treatment of Trade Waste. Part II. Wastes from Silk Dyeing—A report on a study of methods for the purification of waste from a relatively small piece-dye works having a discharge of 100,000 gallons of waste water per day, mainly within 10 hours. Both silk and silk-and-cotton goods are dyed. About 300 pounds of soap are used per day, together with bleaching powder, silicate of soda, hydrogen peroxide and small amounts of other chemicals. The wastes are dye liquors, two bleach liquors, two boil-offs, a mercerizing liquor, and a sour. Satisfactory results were obtained when the composited wastes were treated with 5 pounds of copperas and 4 pounds of lime per 1,000 gallons. Mercerizing liquors are neutralized and mixed with the dye waste along with other miscellaneous waste liquors. "Sludge is settled in a 4-hour detention basin and discharged to the sanitary sewer." The same treatment has been applied with equally satisfactory results to plants with a daily discharge up to 4,500,000 gallons. "The plant is subject to the rulings of the Passaic Valley Sewerage Commission and is or will soon be compelled to treat the waste in such a way that 90 per cent will be substantially colorless and harmless to fish or plant life when discharged into the river. The discharge of the remaining 10 per cent . . . is permitted provided it contains nothing which will be injurious to the structure of the sewer."—Foster D. Snell and Donald S. Bruce, *Indus. & Eng. Chem.*, 19:237–9. Abstr. E. J. Theriault.

L'Emploi du vert de Paris pour tuer les Larves d'Anopheles (The Use of Paris Green to Kill Anopheles Larvae)—The authors mixed Paris green with dust or dry earth in the proportions 1 to 100 to 1 to 2,000, and spread the mixture on water in which were Anopheles larvae, at the rate of 11 to 12 g. per sq.m. Seventeen experiments were made in the laboratory, and nine in the open. In the laboratory, the larvae were always killed in from 2 hours and 15 minutes to 5 hours and 40 min-

utes, with dilutions of 1 to 100 to 1 to 1,000. With the dilution 1 to 2,000 the action is very slow, nine-tenths of the larvae dying in 24 hours, and the rest during the following 24 hours. In the open, the results were not so good. The dilutions of 1 to 100 to 1 to 1,000 did not kill for several days, and meanwhile some of the larvae transformed to pupae, which were not poisoned. Larvae of some other dipterous insects were not affected by Paris green.

To test the toxicity of Paris green, rabbits were allowed to drink water on which the mixture had been spread, over a period of two weeks. One of the animals showed at the end of a month, a paralysis of the hind legs, seemingly of arsenical origin. More extended observations should be made with different species of animals, especially as Paris green appears to be a less powerful larvicide than kerosene, and is not preferable for use on watering places.

[Abstractor's Note: The results of the authors are not in agreement with the usual experience with Paris green. It is suggested that this disagreement may be due to one or more of several causes: (1) Inferior or adulterated material, not containing the proper amount of arsenic; (2) unsuitable diluting dust, causing adherence of the poison to the particles, or interfering with the ingestion of the poison by the larvae. Field workers in Brazil reported against the use of Paris green, and subsequently found their failure due to an adulterated Paris green; the experience of W. V. King in using "foundry partings" containing 2 per cent of oil, which caused the Paris green to adhere and sink; and the abstractor's experience in using flowers of sulphur, which prevented the larvae from getting a toxic dose, show the need of care in these respects. The United States Insecticide Law specifies a 50 per cent arsenious oxide in Paris green, and if such is used there should be no failures due to inferior or adulterated material.]—O. Hermann, J. Kolossow and N. Lipin, *Centralbl. f. Bakteriol.*, 98:547, 1926. Abstr. W. H. W. Komp.

Plant **Disposes of Non-Combustible Rubbish at Los Angeles**—This article, together with the one published in the *Engineering News Record*, August 6, 1925, page 108, on the operation of the Fontana hog farm, gives a very complete and interesting description of how Los Angeles with a population of around one million is disposing of its refuse and garbage.

A city ordinance requires that each householder keep two containers and that one be used for food waste (garbage) and the other for everything else. The garbage is collected by the city and dumped into tank cars and hauled to the Fontana hog farm. The refuse, also collected by the city, is sold to the Los Angeles By-Products Company for $502 per month. The average collection of refuse per working day over a period of 6 months was 528 cu. yds. The maximum collection for one day in December was 691 cu. yds.

From a monthly average of 13,500 cu. yds. of refuse there were reclaimed: (1) 600 tons of tin cans; (2) 175 tons miscellaneous metal that had been lightly burned to remove combustible material; (3) 15,000 saleable bottles; (4) 85 tons of saleable broken glass; (5) 1½ tons of rags; and (6) 8½ tons of scrap metal, tires and rubber. There were counted 167 different combustible items in one day.

Seven men stationed along the conveyor belt from the dump pick out and segregate the different kinds of material in the refuse. All the metal, except the tin cans from which tin is recovered and granite-iron which can not be salvaged, is loaded into metal cars, burned and baled. The bales, 20" x 24", are made by a 600-lb. weight dropping 7' on the metal in a chamber at a rate of 25 blows per minute.

The tin cans are removed at the ends of the two conveyor belts by magnetic pulleys that hold the tin cans to them until they get around and beyond the point where other material is thrown off. The tin cans, separated from all other material, are lightly burned to remove labels, etc., and then delivered to the detinning plant where the tin is removed by a chemical process. Paper labels on cans interfere with efficiency of operation and the labels are very difficult to remove. Investigation of this problem is under way. About 20 lbs. of tin are recovered per ton of cans.

The detinned cans are baled in hydraulic presses. When baled to a density of 11 per cent of the density of pig iron, they are sold to copper mills for use as a precipitate, and when pressed to 50 per cent they are sold to steel mills for remelting. In addition to the 600 tons of cans delivered by the city, the company purchases 400 tons of cans and scrap tinned metal from nearby cities.

Pure clear glass that cannot be salvaged whole at the plant is broken and a part ground so that the bulk does not exceed 40 cu. ft. per ton, and is then shipped to China.—Anon., *Engr. News Rec.*, 98:526 (Mar. 31), 1927. Abstr. H. B. Hommon.

INDUSTRIAL HYGIENE

EMERY R. HAYHURST, M.D., AND LEONARD GREENBURG, PH.D

Budapest Congress—The Fifth International Medical Congress for Industrial Accidents and Occupational Diseases announced for Budapest in 1928, probably in September, but the exact date has not come to hand. The Congress is under the protectorship of His Excellency Dr. Joseph Vass, Royal Hungarian Minister of the Public Welfare. The Executive Committee consists of the following members: President, Dr. Tibor de Verebély, Professor at the University; Vice-President, Dr. William de Friedrich, Professor at the University; Secretary-General, Privatdozent Dr. George Gortvay, Sections-Chief.

A National Committee for the United States is being formed. Those appointed to date consist of: Volney S. Cheney, R. W. Corwin, Eugene L. Fisk, Otto P. Geier, Leonard Greenburg, Emery R. Hayhurst (Chairman), George M. Kober, Lloyd Noland, Francis D. Patterson, George M. Price, Frank L. Rector, Wm. A. Sawyer, Henry F. Smyth, C.-E. A. Winslow.

Members and Fellows of the American Public Health Association and others who may be interested in this Congress or expect to attend the same should get in touch with the Chairman of the American Committee, Emery R. Hayhurst, Hamilton Hall, Ohio State University, Columbus, Ohio.

Netherlands Industrial Exhibition—A subdivision of the Netherlands Industrial Exhibition, which will be held at Rotterdam, Holland, from June 1 to September 15, 1928, will consist of a section of "professional hygiene-safety, professional illnesses and psychotechnics." For this purpose a special hall has been provided. The Committee for this subdivision consists of the following: Dr. N. M. Josephus Jitta, chairman of the sanitary council, as first chairman; C. J. Ph. Zaalberg, general director of Labor as second chairman; Ing. R. A. Gorter, director of the Safety Museum in Amsterdam; Dr. W. R. M. Kranenburg, medical adviser of Central Service of Labor Inspection; Prof. Dr. J. G. Sleeswijk, professor of Technical University at Dalft; Dr. A. H. Vossenaar, chief medical director of the mines at Neerlen; Dr. J. Sanders, medicine; and E. W. Drijver, confidential clerk of the Bank-Associate at Rotterdam.

This subdivision will be divided into a scientific and a commercial section. In this latter will be given opportunity, as far as the space permits, for commercial exhibitors of appliances or methods which may come under any of the groups above mentioned. Prospective exhibitors should apply to Dr. J. Sanders, first secretary, Heemraadssingel 240, Rotterdam, Holland.

Resolution on Health Hazards in Industry—Before the House of Delegates of the American Medical Association at its meeting held May 19, 1927, Dr. W. S. Leathers, Section on Preventive and Industrial Medicine and Public Health, presented the following resolution, which was amended to send it to the Board of Trustees and duly carried:

WHEREAS, the reports of the conference committees have shown that health hazards are arriving constantly in industries, which require intensive field investigation and special laboratory studies before proper measures can be devised for the protection of the workers in the industries and often of the general public as well, and

WHEREAS, few states are provided with the trained personnel and special laboratory facilities necessary for the study of such health hazards; therefore be it

RESOLVED, that this Conference respectfully petition the Congress of the United States to make possible an increase in the personnel and resources of the United States Public Health Service in order that the service may extend its activities in the field of industrial hygiene.

Occupational Diseases in New Jersey—John Roach, deputy commissioner of labor of New Jersey, at the 14th annual convention of the Association of Governmental Labor Officials, said: "A large percentage of the ill-health among workers is due to improper working conditions, exposures to poisonous trade substances, devitalizing fatigue, and sustained effort beyond the strength of the individual, and that these are among the causes which send 4,000,000 people to the hospitals

each year." Recently in New Jersey the workmen's compensation act was extended to cover a specified group of occupational causes. Nearly all of the substances which by reason of their cumulative effects could be classed as causing occupational diseases are included. While the establishment of compensation is a distinct step forward, Mr. Roach considers that the temptation is to exaggerate the social value of the sums expended in settlements for occupational injuries, while the measures for prevention which have resulted from the enactment of such legislation are immeasurably more important.

For several years in New Jersey it has been a requirement that every industrial disease should be carefully investigated, and that the services of an expert consultant in industrial chemistry are available in cases which involve complicated and difficult problems in chemistry, while a skilled technician is employed for the purpose of making atmospheric tests where needed. The number of cases of occupational diseases reported during the year 1926, and other features, are shown in the following table:

OCCUPATIONAL-DISEASE COMPENSATION CASES OCCURRING AND CLOSED DURING 1926

Occupational disease	Total number of compensable cases	Total days' time lost	Total indemnity paid
Amido derivatives of benzol (anilins)	2	50	$ 87
Anthrax	11	358	661
Arsenic	1	230	383
Heat and light (including heat from asphalt—not burns)	1	22	36
Lead poisoning	32*	7,816	9,478
Mercury	2	616	1,239
Nitro derivatives of benzol (diartrinitro-benzol) (*sic*)	8	365	808
Occupational activity (cellulitis, etc.)	23	696	1,126
Not otherwise classified	1	32	61
Total	81	10,185	$13,879

* One death, painter, 51 years of age

—*Monthly Labor Review*, 25, 2:57 (Aug.), 1927

Effects of **Odors upon Health**—Under the paragraph heading "Effects of Effluvium on Health and Amenity," occurs the following: "The escape of fumes from a carelessly conducted fish factory may prejudice the public health. The fumes may cause actual sickness, with vomiting, as has been demonstrated again and again, or they may induce only a feeling of nausea, which is, nevertheless, a devitalizing factor, rendering the individual more susceptible to intercurrent disease. Further, they may interfere with the treatment of some classes of patients, particularly those for whom fresh air is an urgent necessity—patients suffering from infectious fevers, tuberculosis and the like. They may compel the closing of windows by residents within a wide radius, and they may interfere with the ordinary enjoyment of life. Their interference with general amenity may be realized from their influence on building activity in the neighborhood. In one case on the fringe of a busy industrial area there has been no new building by private enterprise within three-quarters of a mile of the factory during the 20 years of its existence."—Thomas Ferguson, *J. Roy. San. Inst.*, XLVIII, 1:36 (July), 1927.

Viscount Leverhulme on "Health and Efficiency in Factory and Workshop"—Viscount Leverhulme, President of the Section on Industrial Hygiene of the Royal Institute of Public Health, spoke at some length at the Congress of the Institute held in Ghent, 1927. Aside from the ethical side of the matter, employers, in ever increasing numbers, are now realizing that attention to the health of their work people, the provision of congenial working conditions, and what may be termed health services within the factory, more than justify the expenditure involved, for they result in a more contented and efficient staff, less loss of time, higher output and increased sales, as well as a better appreciation on the part of the public. Some employers hold that their responsibilities end with the payment of wages and their compliance with government regulations, others rush to the other extreme and introduce welfare schemes which are often of a faddy nature. The right course is probably the middle one between indifference on the one hand and grandmotherliness on the other.

"The number of days lost every year through sickness, even in factories where the most careful precautions are taken, is very great. Over the last three years the average figures for our own factory have worked out as follows:

	Days per Employe	
1924.....	6.3	for men
	8.01	for women
1925.....	4.82	for men
	9.41	for women
1926.....	4.88	for men
	6.25	for women

This means that on the average the time lost through sickness has been equivalent to closing the whole factory an entire week each year. These figures do not mean that the absentees have all been ill for this average number of

days, for no employe is allowed to come to work if there is a case of infectious disease in his or her home." "To employes absent through contact with infection we pay half wages, as we do also to those absent through sickness, and we regard these payments as not only fair, but as paying for themselves through the improved general health of the factory." "If we analyse the cases of absence due to sickness we find that those arising directly from employment account for only about 1.5 per cent of the whole. The greatest enemy we have is common cold and influenza, which accounts for no less than 33 per cent." Any girl or woman feeling temporarily unwell may retire to one of the rest rooms, no pay being deducted for lost time, and we find that the privilege is never abused.

Where ample recreational facilities exist in the neighborhood there is no great need for an employer to concern himself in the matter, but in the case of more isolated factories, the employer will be well advised to take interest in this matter. "In departments where the operations consist of endless repetitions, such as stamping, wrapping and packeting goods, and are therefore monotonous, we have introduced gramophones with amplifiers and we find that the playing of music has an inspiring effect during the later hours of a working day. This concerns psychology rather than medicine, but in that, cheerfulness promotes good health."

"I would touch upon just one final problem arising out of factory life. It may or may not be the concern of industry, but it is certainly the product of the industrial age in which we live. The majority of our young girls go to some factory or works on leaving school and there they probably remain until they get married. They then have to take up the duties of a housewife, of which they have had little or no preliminary experience. . . . It may be argued that an employer wants to keep his good girl employes with him and not make them attractive in the marriage market, but for the more enlightened employer the provision of facilities for studying domestic science offers an opportunity for service of real national importance."—*J. State Med.*, XXXV, 8:450-457 (Aug.), 1927.

The Comfort Zone for Men at Rest and Stripped to the Waist—In the abstract of this paper which was presented in this JOURNAL (July, 1927, page 760, column 2, line 14) it was stated that "in order to eliminate the effects of diurnal changes in the adaptation to atmospheric changes . . ." The abstractor desires to point out that this statement was intended to convey the fact that these effects were eliminated as variables and hence were taken into account by the procedure described later in the abstract.—C. P. Yaglou, *J. Am. Soc. Heat. & Vent. Eng.*, 33, 5:285 (May), 1927. L. G.

FOOD AND DRUGS

WALTER S. FRISBIE

Utilization of the Calcium of Spinach—Women in normal health were used in feeding experiments to determine whether the calcium in spinach which is insoluble in water may be utilized. Comparison was made between a diet in which spinach furnished most of the calcium and one in which an equal proportion of this mineral was supplied by milk. Feeding experiments conducted for six days showed a positive calcium balance on a spinach diet in 6 out of 7 healthy women and calcium equilibrium in the 7th. Spinach furnished 70 per cent of the calcium, and the intake was greater than the calculated requirement for maintenance. It was thought that the repeated use of an unusually large quantity of spinach would emphasize any tendency toward hindrance to calcium assimilation through presence of fiber or oxalates, but no such tendency was demonstrated. Storage of calcium in adult women is assumed to demonstrate a utilization of the calcium of spinach.—Laura McLaughlin, *J. Biol. Chem.*, 74:455 (Sept.), 1927.

Antirachitic Value of Irradiated Cholesterol and Phytosterol—Beta- and gamma-sitosterol were prepared from corn oil after crystallization in a state of comparative purity. Alpha-

sitosterol was also prepared from the mother liquor after recrystallizing a fraction of the crude sterol and further purified. These were tested biologically with a rickets producing diet supplemented by 2.5 mg. of these purified sterols. Alpha-sitosterol was found to be strongly antirachitic whereas the beta- and gamma-sitosterol products were not active, indicating that the substance which is susceptible to activation by ultra-violet light is present only in alpha-sitosterol, the fraction which has not been brominated. If ergosterol is present in corn oil it is possible that this was the substance extracted and activated, but the authors conclude that if ergosterol is the sole antirachitic precursor, it is evident that this must be universally present in animal and vegetable plants, which is an exceedingly broad conception.—Alfred F. Hess and R. J. Anderson, *J. Biol. Chem.*, 74:651 (Sept.), 1927.

Food Poisoning Due to Bacilli of the Type B Morbificans Bovis (Basenau)—In June, 1926, there occurred 39 cases of gastroenteritis in 11 families in Swansea, which was attributed to pressed beef. At the time of sale the lower portions of the meat were described as "soft and jelly-like." In one case the symptoms of sickness appeared 5 hours after ingestion, although the general period of incubation was 12 to 15 hours, and in a few cases 24 hours, warranting a conclusion that a preformed toxin was not the probable cause of the disturbance. There were no fatal cases. In 4 out of 5 patients, Salmonella organism was isolated from the feces. From the wooden discs between which the meat was packed, Salmonella-like colonies were obtained but no true Salmonella was detected. As a result of cultural and serological studies, the organism which was responsible for the outbreak was designated as *B. morbificans bovis* (*Basenau*), one of the Salmonella group.—Food Poisoning Due to Bacilli of the Type B. Morbificans Bovis (Basenau). A. F. Sladden and W. M. Scott, *Brit. J. Hyg.*, 26:8 (July), 1927.

Use of **Hypochlorites as a Sterilizing Agent** for Dairy Utensils—Three commercial disinfectants on the British market were investigated in which the amount of available chlorine varied from 1.23 per cent to 0.49 per cent. It was found that a 6 per cent solution of the strongest disinfectant would not give the same sterility as steam under working conditions. One objection to the use of chlorine preparations for sterilizing is that if the chlorine is left in it would be added to the milk and when removed by water there is a possibility of recontamination of the churn.—W. A. Hoy and Janet R. L. Rennie, *J. Hyg.*, 26:127 (July), 1927.

Rural Outbreak of Cholera Due to Infected Drinking Water—An account is given of an outbreak of cholera occurring in a rural community in the Philippines. Twenty-five cases occurred in 11 days, 23 of which were fatal. At the beginning it was thought that the outbreak was one of fish poisoning, but nothing was discovered to support this belief and the disease was proved to be cholera, considered to have been caused by the infection of drinking water from a spring which is slow flowing and exposed to surface contamination. Investigation was made into the question of milk and other foods which might have been infected, with negative results. No further cases occurred after disinfection of the spring with potassium permanganate and after boiling of drinking water and usual prophylactic measures had been advised.—Hilario Lara, *Am. J. Hyg.*, 7:606 (Sept.), 1927.

Toxicity of Zinc—Investigations as to the toxicity of zinc were conducted biologically, using rats as test animals. A satisfactory growth-promoting basal ration was used, to which was added metallic zinc and zinc salts of varying degrees of solubility. Normal growth took place in all cases where 0.25 per cent of the basal ration in the form of zinc and zinc salts was added. This amount was in excess of the ordinary contamination and sufficient to prove fatal with a toxic metal. No pathological conditions were found in the organs of the rat and the ash content of these organs showed no perceptible increase. Only a small increase in the amount of zinc in the organs of zinc-fed animals was found. This metal normally appears in the internal organs of rats. The path of excretion was through the feces, although there was slight increase in the urine of zinc-fed animals.—V. G. Heller and A. D. Burke, *J. Biol. Chem.*, 74:85 (July), 1927.

The Association of Vitamin A with Greenness in Plant Tissues—Rats on a basal diet of cornstarch, casein and salt mixture supplemented by dried yeast and in which the cornstarch had been irradiated to prevent development of rickets, were fed yellow inside leaves

of head lettuce, leaf lettuce, and a number without any vitamin A supply served as controls. It was found the leaf lettuce excelled head lettuce in the growth-promoting function in the vitamin A deficient diet, and that the outside green leaves of lettuce were superior in that connection to the inside yellow ones. Indoor leaf lettuce was found to be as efficient as outdoor leaf lettuce. The evidence indicates the possibility of a connection between the presence of chlorophyl in the lettuce leaf and vitamin A content, but with the amount of data available at the present time it is unsafe to infer whether this relationship is casual or consistent.—Marie Dye, Olin C. Medlock and John W. Crist, *J. Biol. Chem.*, 74:95 (July), 1927.

Pellagra-Preventive Action of the Tomato, Carrot and Rutabaga Turnip—Several years ago the Georgia State Sanitarium began a study of the pellagra preventive value of certain foods, the results of which have been previously reported (*Pub. Health Rep.*, 39:87 [Jan. 18], 1924; 40:54 [Jan. 9], 1925; 41:297 [Feb. 19], 1926). In this paper are reported results of a study of the pellagra preventive value of tomatoes, carrots and rutabagas.

Of 21 insane patients under observation, none developed any evidence of pellagra when given a daily ration (1,200 gm. or 40 oz.) of canned tomato juice for a period of approximately one year.

After nine months 5 of a small group of patients developed pellagra when fed a daily ration (453 gm. or 1 lb.) of carrots, and the same results were obtained when an equal amount of rutabagas was fed.

It is the authors' opinion that the failure of carrots and rutabagas to prevent pellagra was due to the fact that the amount was too small, however, if these vegetables do possess pellagra preventive action, it is rather feeble. The fact that tomatoes were found to have pellagra preventive properties is of considerable importance because of the relatively low cost of this article of food, and a liberal use of it is recommended in the treatment of active cases of pellagra.—Joseph Goldberger and G. A. Wheeler, *Pub. Health Rep.*, 42:1299 (May 13), 1927.

Effect of Ethylene on the Composition and Color of Fruits—The work so far conducted by these investigators has indicated no change in the edible portion of citrus fruits which have been colored by the ethylene method. In the case of persimmons it was found that the color was increased and the astringency practically eliminated, although the fruits were considerably softened so that they would be impracticable for shipment. The authors believe the data on dates too meager at the present time to permit a definite conclusion to be drawn, but so far no changes are evident which would not have been caused by heat alone.—E. M. Chace and C. G. Church, *Ind. & Eng. Chem.*, 19:1135 (Oct.), 1927.

The Iron Content of Animal Tissues—The iron content of various animal tissues and organs has been determined by the authors using a modified method (Elvehjem, C. A., and Hart, E. B., *J. Biol. Chem.*, 67:43, 1926). Bone marrow, hide, intestine, hair and muscles are low in iron, whereas the lungs, spleen, liver and kidneys are relatively high in this metal. In comparing the iron content of certain organs of different animals it was found that the spleen of the hog was highest both in the flesh tissue and in total dry matter. The hog liver contained much more iron than the beef or calf liver. The possibility of selecting organs for use in anemias is apparent.

Another point in connection with infant feeding is the fact that beef juice contained only 0.0029 per cent iron, or 11.8 per cent of that present in the original beef.—C. A. Elvehjem and W. H. Peterson, *J. Biol. Chem.*, 74:433 (Sept.), 1927.

Mold and Yeast Counts and Their Relation to the Composition of Butter—Samples of 2,700 lots of butter were examined to ascertain the relationship between the yeast and mold counts and the composition of the butter. It was found that the moisture content had no marked effect upon the mold and yeast count. Both the mold and yeast counts appeared to be affected to a marked degree by the salt content of the butter. As the concentration of salt increased the mold and yeast counts decreased. This was also found to be true of the percentage of "salt in brine." The influence of higher concentrations of salt and "salt in brine" appeared more marked for mold than for yeast counts.—H. Macy, *J. Dairy Sci.*, 10:384 (Sept.), 1927.

CHILD HYGIENE

MERRILL E. CHAMPION, M.D.

Are Summer **Camps Really Effective?**—The first camp was a cottage at Cape Henry accommodating 14 children. The children were all given the Von Pirquet test, and all but one reacted positively, *i.e.*, had latent infection. The object of the camp was entirely to prevent tuberculosis. From the very beginning, camp children were under supervision all the year and were made to report at the clinic.

The second year cottage was enlarged and 15 children were cared for. The third year camp was sold and a larger cottage purchased at Willoughby Beach and the children ate and in most cases slept entirely on the open porches.

The children were taught to eat some of all food served them and not to take more on their plates than they could eat. They were taught which foods were good for them; the necessity of a mixed diet; the use of sweets only at end of a meal. The cost of food per capita per day was less than $.45 and the total expense for running the camp, including food, was $.75, or $1,500 to $2,000 per year.

In 1914 or 1915 clinic nurses started the follow-up of cases in school as well as home, and at present all camp children are made to report at regular intervals for a check-up of health and nutrition. The majority are cared for in open air school rooms and their teachers are instructed to coöperate with nurses and clinic by taking daily temperatures and reporting regularly on the physical and mental status of the children. In general 2 or 3 summers at camp are necessary to put a child on his feet.

The camp should be closely coördinated with the clinic and the school.—Chas. R. Grandy, M.D., and J. S. Franklin, R.N., *J. Outdoor Life*, Aug., 1926.

Summer Health Camps in Massachusetts—Features believed in and practiced by health camps in Massachusetts are:

1. Careful selection of children to secure tuberculosis contacts and others already infected.
2. Careful physical examination at time of selection and entering camp.
3. Scientific regimen of camp life emphasizing rest and heliotherapy.
4. Training in health habits during camp period.
5. Establishment of confidential relations with parents and guardians.
6. Arrangement for definite and continuous follow-up.

Secretaries of Massachusetts camps meet three times to discuss camp problems. Representatives of the State Department of Health and local health departments and health education specialists sit in at these conferences.—Frank Kiernan et al., *J. Outdoor Life*, April, 1927.

Where Grammar School Children Are 100 Per Cent Healthy—There have been no epidemics of communicable diseases in Little Rock, Arkansas since the health program was instituted two years ago in the public schools. The article by Miss Bessie Boggess, Director of Health Education in Little Rock public schools, shows how the pupils themselves have become vitally interested in putting over their own health program.

The problem of any health program is to motivate the work so that constructive and health producing habits will be formed by every child. In Little Rock a score card is the means of interest. The determining factor of the use of this card is that the children are allowed to score themselves. Theirs is not a system which has been thrust upon them but rather one of their own making. The card takes into consideration the obvious symptoms of malnutrition and the probable causes of this condition. During the scoring the teacher observes any cases with symptoms or physical defects which are referred to the school nurse and in turn to the physician.

To those who achieve the 100 per cent mark, which is an attempt to set only a definite goal for the child rather than the best possible standard, a blue ribbon is awarded. Evidently, in this town, although the children are judges of their own conditions, there is not the morbid

introspection feared by many health workers. The pupils are eager to attain the goal but do so with normal enthusiasm.

Formal health classes are held daily by the health teacher. No mid-morning meals or extra lunches were served nor were any special rest periods required, but every child from the second grade through the sixth was taught the proper foods. Ninety per cent of the children are up to weight.

For the correction of defects there is a dental clinic and a nose and throat clinic. Typhoid inoculation has been given to 5,000 children.

The coöperation of the children in this program has been secured because their interest has been positively aroused for the betterment of their own condition.—Bessie Boggess, *Nation's Health*, Sept., 1927.

The Whys and Wherefores of the Summer Camp—

Fundamentals:

1. Health camps should be conducted primarily for giving treatment to those needing it and only secondarily for recreational purposes.
   a. Only cases 10 per cent or more underweight should be selected.
   b. Physical defects of teeth, eyes, tonsils, and adenoids should be corrected before entering camp.
2. Children who are manifestly tuberculous should not be accepted for summer camp since such children require more absolute rest and a longer period of time than the merely malnourished.
3. Daily rest periods and abundance of fresh, wholesome, natural foods, and Rollier method of sun treatment should form the basis of treatment.
   a. Three substantial meals a day in which whole grain cereals, fresh leafy vegetables, fresh fruits and milk form the bulk of the diet.
      1. May be supplemented by light lunches, mid-morning, mid-afternoon, and before retiring if the children are not gaining as rapidly as they should and if it does not spoil the appetite for regular meals.
4. Records should be kept of the physical findings of children treated and improvements made. Children should be followed up during whole year after leaving camp and should be examined at definite periods and records kept up to date. This is the only way in which essential factors and progress of each case will be of value or camps conserved for others.
5. Every city of 5,000 inhabitants or over should be able to maintain a camp for malnourished children.

A small camp, rightly conducted and limited to physically below standard children can be one of the most important health activities in the community.

The more money that is spent on child health the less we will be forced to spend for adult sickness.—R. H. McCutcheon, *J. Outdoor Life*, Apr., 1927.

Prevention of Anorexia in Children—Dr. Aldrich's paper gives a definite and practical outline of procedure useful to parents and others having to do with feeding children.

Physiological and psychological influences are those discussed—particularly the latter as appetite is more dependent upon them, and after all it is appetite rather than actual hunger that we must have to insure sufficient food intake these days.

The high lights in this outline are *avoidance of over feeding* and elimination of forced feeding. These points are gone into and emphasized from several angles. Healthy children moderately under average weight should not be forced to eat.

Nourishment between meals was not advised for any child in the group under Dr. Aldrich's care and observation. He speaks feelingly of "the neighborhood baby race" as "a great obstacle to conservative pediatrics."

Another point brought out was necessity of individual direction of each child.

In conclusion Dr. Aldrich asks: "In meeting the widespread anorexia revolt now being staged by children, we must squarely face this issue: Are we to insist that children eat certain prescribed amounts of food in an effort to make them all attain prescribed statural goals, or are we to make an intelligent effort to develop appetites so that each child will voluntarily eat sufficient food to insure his own best development?"—Dr. C. A. Aldrich, *J. A. M. A.*, Sept. 17, 1927.

Is Health Work in the Schools Paying Tangible Dividends?—The time has come when workers in the field of health feel that they should know definitely whether or not the method of health teaching in the public schools is of value. School health programs have now been carried on for ten to twenty years. The methods of conducting these programs are

widely different, some schools having weighing and measuring, some annual physical inspections, others dental inspection and so on. Fifteen representatives of the American Child Health Association, as Dr. George Truman Palmer states, started out in September to measure the results of different types of programs. Seventy cities will be visited, each group of five individuals visiting about 23 cities.

In each city, a group of 100 to 200 children in the fifth and sixth grades will be studied. Theoretically, other things being equal, a group having received health education should be in superior health to those not having received it since the purpose of health education is the improvement of the health of the individual.

The tests to be used have the following attributes which are requirements for any valid measuring device: Objectivity, so that all examiners will get the same results with the same test; reliability, and validity.

This study of cities will be concluded in June, 1928. At present the results expected are:

A. An evaluation of school health practices

B. Standards of organization and procedure

C. Improved methods and increased effectiveness in school medical inspection as well as other branches of school health service

D. New light on health teaching methods

E. Tests by which schools may measure health progress

F. A heightened interest in and an increased use of the mathematical approach in the study of health problems.—George Truman Palmer, Dr.P.H., *Child Health Bull.*, Sept., 1927.

Some Essentials in a Dental Health Program—Dr. W. R. Davis gives as the most important essential of a dental health program, that of really understanding the objective of such a plan. The answer given by many dentists as to the aim of their program has been "education." This, however, should be only a means to the end—the revival and prevention of mouth infection. To carry on a vital program the dentists themselves, according to Dr. Davis, must be willing to work. Of what value is education if, when the mother has learned that the abscessed deciduous teeth of her child should be cared for, she is told by her dentist to let them alone?

The preventive program should stress the dietary factors in tooth production as well as the early care of teeth with emphasis on the filling of pits and fissures which are to be found only by use of a fine, sharp explorer. The teaching of the importance of prevention is part of education which should in addition cover the following phases: prevalence and danger of mouth infection and the necessity of removal of such infection.

One must avoid fads in a dental health program as well as in any other program. The tooth brush has been overemphasized to the detriment of other phases of the program. The toothbrush has its place in mouth hygiene but our slogan should not be "A clean tooth never decays." In some school health programs the whole emphasis is on toothbrush drills and clean teeth with resulting wrong impressions on the public.

A broad health program including all measures for promoting health is the ideal. The dental program should fit into such a scheme, coöperating with health departments and other health agencies, school nurses and parent-teacher organizations.

"Actual examination which shows real accomplishment in the removal and prevention of mouth infection is the only test, and it is the acid test of any dental health program."—Wm. R. Davis, A.B., D.D.S., *Am. Dental Assn. J.*, July, 1927.

The Pellagra Problem—"Campaigns for the eradication of pellagra are now necessary even as those for child hygiene, tuberculosis, and other health measures," says Miss Lucy Minnigerode in an article in the *American Journal of Nursing*. This paper has been prepared in two parts: Part I by E. Blanche Sterling, M.D., and Part II by Lucy Minnigerode, R.N.

Dr. Sterling gives statistics of interest—80 per cent of the cases of the disease occur in the South; three times as many women as men die of pellagra; children under two years rarely have pellagra; of 79 children between five and nine years of age in seven cotton mill villages in the South, 39.2 per cent were pellagrins.

It is generally agreed, especially since Goldberger's work on the vitamin P-P that diet is the determining factor in the disease. This vitamin, pellagra preventive, is contained in milk and lean meat. In all but severe cases of pellagra Goldberger maintains that careful feeding is all that is necessary. A well balanced diet containing plenty of milk and some meat will serve as a preventive for pellagra. It has been found that after a financial depression the incidence of the disease rises. With lower incomes the prevalence of pellagra is

greater. This is due to a faulty selection of foodstuffs. In certain sections of the South the winter diet is restricted to dried vegetables, and wheat and corn products. With no milk, fresh meat, green vegetables, or fresh fruit many new cases of pellagra are found in the spring.

This calls for the education of the southern women especially to a properly balanced diet with its prevention of pellagra.—E. Blanche Sterling, M.D., and Lucy Minnigerode, R.N., *Am. J. Nursing*, Aug., 1927.

Prevention and Treatment of Rickets—Acute rickets occurring during the first two years is clearly defined as "a condition in which there is a disturbance in the mineral metabolism of the growing organism." Well advanced rickets is characterized by restlessness, head sweating, delayed dentition, softening of the skull bones, flabby muscles and characteristic bone deformities.

Dr. Wyman outlines in detail and in a most interesting manner, the experimental study of rickets undertaken at the Children's Hospital, Boston, in 1927, to determine the value of the various types of glass now on the market to be used in the treatment of rickets. Clinical evidence, X-ray and blood examination were required to prove the value of such treatment. Of the three types of glass used quartz (General Electric Company), Corning glass and Vitaglass were tried out. Cod liver oil prevents severe rickets with certainty in the majority of cases.

Slight rickets, seen only by means of X-ray, occurring in rapidly growing breast fed infants whether or not they are taking cod liver oil "may be a physiological process and is of little consequence."

Dr. Wyman recognizes that the prevention of rickets in the individual is a far simpler problem than the public health problem of rickets prevention.

Perhaps no statement in this comprehensive paper is of more interest than the following: "During the past winter we have had considerable difficulty in finding a sufficient number of babies with severe rickets in the Out-Patient Department for our studies in the hospital ward, whereas, five years ago we had no difficulty whatever in finding plenty of babies with severe rickets. This striking decrease in the morbidity of rickets can be due only to widespread adoption of antirachitic measures which has resulted from public health propaganda and the recognition on the part of the general practitioner of the specificity of cod liver oil and sunshine.—Dr. Edwin T. Wyman, *Boston M. & S. J.*, Sept. 8, 1927.

PUBLIC HEALTH NURSING

MIRIAM AMES, R.N.

Capitalizing Mistakes in Office Planning—Many splendid executives among our friends and acquaintances apparently have been born with a flair for office management; many have acquired it, while others have had it thrust upon them as their responsibilities increased. Only after repeated mistakes have they at last attained a degree of efficiency, somewhat short of the ideal they set for themselves when in their first enthusiasm they planned a flawless organization.

W. H. Leffingwell, of the Leffingwell-Ream Company, New York City, is one of the leading authorities in office management, and his textbook on this subject is widely used. At a recent conference of the National Association for Office Management, Mr. Leffingwell gave a paper which we have abstracted because we believe it will benefit nurses and others who are confronted with the problems of managing an ever increasing office staff.

The author believes that most of our serious mistakes are errors of judgment due to

1. Faulty information
2. Insufficient knowledge
3. Lack of experience

Ten rules which are given us by Mr. Leffingwell have evolved from mistakes which he admits were his own at one time.

1. Be a disciplinarian, but not a martinet. Efficiency at the expense of friendship is not wise. The fear motive works out badly with people capable of using initiative—who will soon be lost to the organization under severe discipline. By weeding out all the independent

thinkers, an executive is forced to do all his thinking himself.

2. Plan so that assistants will have time for the real job of supervising. Do not overdo the central control idea. It is not necessary to have every detail recorded on weekly or monthly reports.

3. Be considerate of the rights, feelings and aspirations of others. Consult them to a certain extent before making drastic changes.

4. Regard systems and efficiency methods as tools which can be profitably used. Over-systematizing swells the volume of work to be done and increases the difficulty of management and the cost of operating.

5. Remember that the true purpose of a file is to preserve material which might have future value. It should not be a repository for worthless paper.

6. Treat individuals in an individual manner. Employes usually mean well, but those who do not should have special attention.

7. Plan the day's work with the realization that important decisions should be made only after due consideration of the subject. The motto "Do It Now!" not only interferes with one's ability to plan work, but "now" is not always the best time to do anything.

8. Avoid being a slave to a routine; such as, "Verbal Orders Don't Go." Differentiate between the essential and non-essential, and learn what kind of instructions must be in writing and what might be given verbally.

9. Absorb new ideas and develop them for one's individual needs. It is a mistake to copy and imitate systems of other organizations unless they are adaptable to transplantation.

10. Remember that good judgment comes from the deepest kind of analytical thinking. Decisions are made in relation to certain definite policies which have been formulated slowly; the decisions should be made on a factual basis, never as a result of a sudden impulse.

In conclusion, the author calls our attention to three important steps in scientific thinking:

1. The scientist defines his purpose; that is, he thoughtfully determines just what is to be accomplished.

2. He analyzes the problem considering all factors with thoroughness and accuracy.

3. He makes a quest for all the facts governing every factor of the problem. This is the point at which experimentation is done. The experiment is carefully watched and controlled, and each trial is governed by a method which is predetermined by the analysis of the problem.

If, with sufficient experience, problems are given sufficient thought, mistakes cannot happen. Successful business or social relations involving the human element depend upon a knowledge of psychology and

Management is to-day appropriating the methods of science, and that manager who learns these methods, will not only avoid many mistakes, but be able to capitalize those he has made.

The Rehabilitation of Cardiac Patients Through Organized Effort—Public health nurses all over the country are concerned in the problem of knowing how to deal with the chronic cardiac patient. Dr. Lewis A. Conner presents one hopeful aspect of the problem, that of the rehabilitation of this type of case.

The first efforts were directed toward relief of the cardiac patient more than fifteen years ago and the steps in the development along this line were effective through:

The outpatient clinic, in which the method of treatment of convalescent cardiacs resembled that which was used in the treatment of patients with pulmonary tuberculosis.

The convalescent home, the forerunner of the organization in 1915 of the New York Association for the Prevention and Relief of Heart Disease. It is now known as the New York Heart Association, a part of the national body of the American Heart Association, incorporated in 1924.

Outpatient Clinics—After sixteen years' experience properly equipped outpatient clinics are found to be the most effective and satisfactory single means of dealing with the problem of relief and rehabilitation. The reasons are that they meet the needs of the chronic ambulatory patients, for which most can be accomplished. They are really inexpensive to maintain; they require limited personnel, and modest equipment. The prerequisites of the properly manned clinic are:

The physician trained and experienced in heart work

Case records kept by experienced clerks

A trained social worker in attendance at the clinics

The clinic days and hours such that patients could conveniently attend, even on Sundays and in the evenings

In 1926, 58 per cent of the patients treated in New York at these clinics were under 16 years of age. About 50 per cent of the clinic cases were of the rheumatic type, by far the most hopeful.

Special School Classes for Cardiac Children—In New York City the problem of the education in public schools of children with heart disease was studied for a period of seven years, with a result that fewer cases of organic heart disease were found than had been supposed. The special treatment, recommended at that time for cardiac children, brought about:

A gain in regularity of attendance

A gain in the rate of scholastic program
Freedom from serious illness

These special classes were finally discontinued, owing to the high cost of maintaining them.

Convalescent Homes and Sanatoriums—Heart patients, if properly selected, profit by and repay convalescent home treatment quite as much as, or even more than, do other types of patients. The requirements of cardiacs differ from those of other convalescents, in that they need:

A longer period of residence
Graduated exercise
More supervision and often vocational guidance.
Encouragement and reassurance of their ability to take exercise and to do physical work

It is interesting to note that tuberculosis sanatoriums are beginning to open their doors to a few chronic cardiac cases. This is a sign of the times, for more and more often the organizations dealing with these diseases are working together.

Trade Schools and Vocational Guidance—As a result of the efforts of the Cardiac Vocational Guidance Committee of New York, in 1923 a trade school for girls was established, and in 1924 one for boys. The children selected are now almost entirely those whose functional capacity rating falls within classes I and IIA. One thousand three hundred and ninety-three children were referred to the committee for assistance in 1925. The routine procedure is as follows:

Thorough medical examinations at an approved outpatient clinic, with periodic reexaminations
Personal interviews with a vocational counselor
Conferences with parents
Investigation of school record
Psychologic tests

From the findings based upon these collected data, the courses of study and training are advised.

Employment Bureaus for the Handicapped—The agencies for those with physical disabilities of various sorts have become a well recognized form of organized aid in a number of cities. The chief difficulty in placing cardiac patients is not so much in finding a position, as in fitting the temperament of the patient to the position. A condition of self-pity and dread concerning the future, with the accompanying results of discouragement, lack of perseverance and deterioration of moral fiber, seems to be peculiar to the cardiac. The moral handicap is often more serious than the physical.

Permanent Hospital Care—Many heart cases in hospitals occupy beds which should be devoted to patients with more acute illness, or disease in which the outlook is more hopeful. Hospitals are more and more giving thought to the proper disposition of the cardiac patient with permanent disorder.

Summary—The outpatient heart clinic may be said to be the unit best adapted to the building of an organization for reasons already enumerated. "As outpatient clinics multiply in a community, some coördinating body will be found necessary to standardize methods and nomenclature, and to serve as a medium for the exchange of ideas and experience. This may well be a heart committee appointed by the local or the county medical society, an autonomous association of cardiac clinics, or a local heart association of wider scope." Dr. Conner advises any approved local heart association to become affiliated with the national body, for then the progress will be more rapid and the future more secure.—Lewis A. Conner, M.D., *J. A. M. A.* (Aug. 13), 1927.

Sheltered Employment for the Tuberculous in the United States—This title is given to a recent bulletin issued by the National Tuberculosis Association, 370 Seventh Avenue, New York, N. Y., in which are described numerous experiments in providing suitable work for persons with tuberculosis. The authors, Dr. H. A. Pattison and Phillip P. Jacobs, have analyzed the results of these experiments in relation to the subsequent life of the persons concerned.

When conditions and work are established which are suitable for the tuberculous, the results are praiseworthy, not only economically, but socially and physically. The problem of the rehabilitation of the tuberculous patient and that of the convalescent cardiac are somewhat analogous, and health workers who are perplexed by the question of knowing what to do for these convalescent patients, should derive much help, both from this bulletin and Dr. Conner's article, reviewed on page 1199.

EDUCATION AND PUBLICITY

EVART G. ROUTZAHN *

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For listing important articles on the first cover page: *Illinois Health News*

For a classified index of the contents: *American City*

How About Testimonials?—The Mayor drank the first glass of milk at the new milk-bar. A leading citizen took a health examination. Several prominent mothers are known to have had their children given T.A.T. and their actions have been useful endorsements making it easier to get others to do likewise. Have we made the most of "testimonials" from those who have reason to know what is good and desirable? In the field of commerce "those who have charge of the spending of money have learned: First, that they cannot hope to become expert in the selection of all classes and grades of merchandise. Second, that even if they could become experts on all purchases it would hardly pay to make the effort because it is so much easier and so much more practical to defer to skilled and experienced judgment." Do we sometimes expect people to become expert in too many directions? Are the days long enough to cover all the demands of getting a living and enjoying it, and meeting various civic and social responsibilities, for every one to learn fully the principles and practices which make for health? May we not help the present generation, at least, by making more use of those who have learned and who can testify as to what is good to do? In "Used by Discriminating People Everywhere" the situation is happily stated and illustrated. S. D. Warren Paper Co., 101 Milk Street, Boston, Mass., will send a copy *free*. Many of us will see the application to health and other social problems.

Linoleum Posters—"Hand-carved linoleum posters, which the College of Agriculture has recently been issuing in connection with extension projects, have attracted comment in several quarters. . . . the method offers a cheap and effective device for advertising."

"The design is drawn, with all the lettering backward, or mirror-wise, and the rest of the design left-handed, as it were, because the design is reversed in the printing. The material used is the best grade of ship's linoleum, which contains no pattern, and is generally of the natural color resulting from the combination of linseed oil and ground cork. That portion of the poster which is not to print is carved out, quite deeply in the larger areas, and the part which is left conveys the impression to the paper.

"Before printing, the linoleum is nailed to a wooden base to bring it 'type-high' for the ordinary printing press.

"The advantages of the linoleum poster are that it can be quickly prepared, and since the block is used for the direct printing, the cost of the photo-engraving is saved. Usually this is at least half of the entire cost of the poster; the only expense is for the paper and impressions.

"Of course, some skill in drawing and lettering is required of the person who designs and cuts the poster, and much patience and care is required in the carving, because one slip may spoil the whole thing. It is difficult to restore a piece which has been gouged out. A penknife, or a few ordinary wood-carving tools are the only implements required."—*Extension Service News*, Ithaca.

"What Is Wrong with This Picture?"—This idea, made famous by a series of advertisements, is used in *Hygeia* (Sept., 1927) in the caption to a picture illustrating unsafe shop practices: "How many things are wrong in this picture? asks the National Safety Council." There are possibilities in the wider use of this method in arousing interest and in offering concrete advice. The device might give sauce to "good" and "bad" contrasting pictures. Some ingenious worker may find material of sufficient general interest to appeal to a newspaper editor.

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York City.

"When Doctors and Laymen Agree"—It came about through two *small* groups of representative physicians and public health workers getting together to seek a mutually acceptable understanding on debated questions. Details, with the joint report on Relations Between Medical Organizations and Voluntary Health Agencies, in *S. C. A. A. News*, 105 East 22d St., New York. July, 1927, *Free*. Probably other situations may be bettered through small group conferences where both sides recognize the honesty and sincerity of the other side.

Inexpensive and Effective—The use of postal cards is urged in *Postage* for Oct., 1926. "Some people object to the use of postal cards as part of campaigns," says Charles Austin Bates, "on the ground that they look cheap. On the same principle, they would object to advertising in newspapers, because they are printed on cheap paper." So have said social workers, but to some extent postal cards are better than letters in spreading information, raising money or promoting the work of a public department or private health agency. It depends upon the copy and the printing. "A printed postal card, taking only a few seconds to read, cannot be offensive," says *Postage*. The *New York Evening Post*, September 10, 1926, quoted a fire insurance agent who raised the "annual premium income of his office from $1,100 to $40,000 without doing any personal solicitation." He depends upon a reputation for fair dealing "plus a monthly postal card." Another writer states that the design of postal cards used in business "has varied from a single type set-up in one color or a multigraphed card, to a highly artistic design run in four colors." *Please report to the editor any use made of postal cards.* Bear in mind that government "postal cards" are less expensive to use than "private post cards."

Book-Marks in Syracuse—"The edition was 20,000. We are distributing them through libraries, book stores, physicians' offices and miscellaneous other channels. Some we expect to give out at booths; at fairs, etc. A little later we also hope to get volunteers to insert them in hymn books in a few selected churches. The book-marks are intended primarily for the class of people who read books. They are the ones who are most apt to be willing to put their hands in their pockets for the payment of the necessary fee for a health examination. The total cost of the book-marks including art work, electrotype cut and printing comes to $93."—Arthur W. Towne, Onondaga Health Association, 327 Montgomery St., Syracuse, N. Y. The book-marks are 2¼ by 9½ inches.

They Do Believe in Education—"There are great possibilities in educating the masses regarding the dangers to health . . ."—"Education Offers Great Possibilities," in *Illinois Health News*. Sept., 1927.

"It has never before been so easy to induce patients to accept sanatorium treatment. It is unmistakable that the persistent campaign of *education* is telling!"—Wisconsin Anti-Tuberculosis Association.

"With each passing year sanitarians are coming to appreciate more and more clearly the importance of effective public health education. . . . The task which confronts the administrator is to carry the knowledge of the laboratory into the home."—Herman N. Bundesen, Commissioner of Health of Chicago.

"It is evident that the stage is set for the entrance of a new public health worker who shall be primarily a teacher of that health which is to be achieved through personal effort and not to be imposed by legislation."—John N. Force before California Conference of Social Work.

The evening course on Community Management of the Problem of Disease, by Dr. E. H. L. Corwin at New York University will include one session on "The hospital 'publicity' and the writing of reports." (We don't know why the quotes for publicity.)

"Dates Ahead" Provide "Opportunities"—Holidays, anniversaries, special weeks and conventions of interest to health workers are listed in the third edition of *Dates Ahead*, a mimeographed bulletin issued by Committee on Publicity Methods, 130 East 22d St., New York. 20 cents.

There are dates to use, and dates to avoid in planning your own program. Many of the sources listed will furnish press copy which can be given a local slant to make it acceptable to newspaper editors in your city.

Among the suggestions for using the dates is the idea that "Children's Book Week may be a time for securing books for all centers where children gather, including clinic waiting rooms." A selection of the dates of chief significance to health workers will appear in this department from month to month.

DATES AHEAD

November, 1927

6-13—Father and Son Week—Address: Local Y.M.C.A., or National Council of Y.M.C.A., 347 Madison Ave., New York, N. Y.

7-13—American Education Week—(including Monday, Health Day)—Address: National Education Association, 1201 16th St., N.W., Washington, D. C.

8—Election Day

11—Armistice Day

11-17—Children's Book Week—Address: National Association of Book Publishers, 25 West 33d St., New York, N. Y.

11-24—Red Cross Roll Call—Address: American National Red Cross, Washington, D. C.

13—Armistice Sunday — Address: Federal Council of Churches, 105 East 22d St., New York, N. Y.

13—Red Cross Sunday—Address: American National Red Cross, Washington, D. C.

13—National Teacher Day—Address: National Congress of Parents and Teachers, 1201 16th St., N.W., Washington, D. C.

24—Thanksgiving Day

25—Opening of Christmas Seal Sale—Address: Your state tuberculosis association: National Tuberculosis Association, 370 Seventh Ave., New York, N. Y.

27—Tuberculosis Sunday (or December 4)—Address: Any tuberculosis association.

December, 1927

Christmas Seal Sale continues

Midwinter school holidays

4—Golden Rule Sunday—Address: Near East Relief, 151 Fifth Ave., New York, N. Y.

4—Tuberculosis Sunday (or November 27)—Address: Any tuberculosis association.

25—Christmas Day

EDUCATIONAL MATERIAL

Department of Agriculture publications are listed in *Farmers' Bulletins.* Supt. of Documents, Washington, D. C. July, 1927. *Free.*

Games and Equipment for Small Rural Schools. Bureau of Education. Physical Education Series. No. 8. 16 pages. 5 cents. Supt. of Documents, Washington, D. C.

Health publications of the Bureau of Education, Washington, are listed under "Health Education Publications" and "Miscellaneous Publications" in Publications Available September, 1927. *Free.* Note that all Bureau publications not sent free are to be ordered from Supt. of Documents, Washington, D. C.

Nearly all United States Government publications which are sold, except those of the Geological Survey, are to be ordered through the Superintendent of Documents and not of the department or bureau issuing them. One writes to the issuing office for free copies. It is quite sufficient to address letters and to make references to the Superintendent of Documents. There is no gain in adding Government Printing Office.

Those concerned with industrial and farm home lighting as eye conservation and safety factors will be interested in the illustrated pamphlets, *Farm Lighting* and *Illumination Design Data.* National Lamp Works, Nela Park, Cleveland, O. *Free.*

CAMPAIGNS

Educational Milk-for-Health Campaigns, by J. M. Hoover. Revised 1927. Supt. of Documents, Washington. 10 cents.

Specific results are reported in "The Summer Round-Up in the Community." *Child Welfare Magazine,* Philadelphia, October, 1927. In the September issue 2,090 local groups are tabulated by states as coöperating in the "round-up."

HELPS ON THE JOB

If you wish to "buy a book": Good Books for Users of Direct-Mail. 24 page descriptive catalogue. *Postage,* 18 East 18th St., New York, N. Y. *Free.*

Not only the head of a public health education bureau is concerned with "Psychological Factors that Guide the Successful Administrator," by R. B. Spence of Teachers College. (*Modern Hospital.* Aug., 1927.) The publicity worker who "administrates" one secretary or stenographer, or who deals with printers and other producers of material, or who amplifies his activities by utilizing volunteers will find this article worthy of consideration.

Some questions on publicity: What is the news about news? Don't you wish you had thought of it first? How many lumps of sugar in your copy? Has anyone a new idea for a picture? Do you owe the public a letter? What books and articles may be helpful in publicity work? What is being talked about at conventions? Is publicity work gaining a higher rating?—For answers see *News Bulletin* of

Committee on Publicity Methods, 130 East 22d St., New York, N. Y. Sept., 1927.

For emphasis upon an important phase of cancer education, with reference to several sources of material see Misinformation About Cancer, in *Campaign Notes*, American Society for the Control of Cancer, 25 West 43d St., New York, N. Y. Sept., 1927. *Free.*

HOW THEY DO IT

An example of a good tempered reply to exceptionally unfounded criticism: "Criticism of American Red Cross Answered by the Chairman." *Red Cross Courier.* Washington, Oct. 1, 1927. *Free.*

If you raise money by mail you will wish "Purposeful Plan in Mail Appeals," by R. C. Roloff. *Better Times.* Oct. 3, 1927.

For photographs of unconventional scenes used to teach practical lessons see "Don't Let Him Drown!" *Red Cross Courier*, Washington, D. C., Oct. 1, 1927. *Free.*

"In Syracuse we are trying to make our clinics as attractive and inviting as possible." Why and how in "Making the Clinic Attractive," by L. F. Bache. *Quarterly Bulletin*, Milbank Memorial Fund, 49 Wall St., New York, N. Y. Oct., 1927. *Free.* (We wish reprints of this article could be supplied to state and national health agencies for distribution).

"I consider that I have on my staff 15,510 interpreters: 15,000 donors; 300 district committee members and volunteers; 50 board members; and 160 staff members," says Clare M. Tousley in "Interpretation of Case Work by the Case Work Method." *The Family*, 130 East 22d St., New York, N. Y. Oct., 1927. 20 cents.

The use of stickers (as below) on birth certificates by the Virginia State Board of Health, is reported in *Public Health Reports.*

> When the baby is six months old have your doctor give Toxin-Antitoxin to prevent diphtheria.
> —United States Public Health Service

LISTS

List of Junior Red Cross Magazines, and list of the national Red Cross of all countries. *World's Health*, 2, Avenue Velasquez, Paris. June, 1927. 20 cents.

The *Journal of the American Dental Hygienists Association*, Augusta, Me., will address envelopes to 1,972 registered dental hygienists.

NEW ADDRESSES

American Association of Hospital Social Workers, 18 East Division St., Chicago, Ill.

American Hospital Association, 18 East Division St., Chicago, Ill.

NEW JOBS AND NEW HONORS

Lloyd Wilcox is publicity director of the Oregon Tuberculosis Association.

Bart Andress has gone from the Salvation Army to the New York Cancer Association as publicity director.

Alberta Regester has become extension secretary of the National Organization for Public Health Nursing.

Charles E. Miner leaves the Missouri Social Hygiene Association to become superintendent of the Committee of Fifteen, Chicago, Ill.

Philip S. Platt, late chairman of Public Health Education Section, A.P.H.A., who is secretary of the Associated Out-Patient Clinics Committee of the New York Tuberculosis Association, was given the degree of PhD. in June by the Department of Pathology, Bacteriology and Public Health, Graduate School of Yale University, under Prof. C.-E. A. Winslow. Dr. Platt's thesis discussed "The Validity of the Appraisal Form as a Measure of Administrative Practice."

THE NEWSPAPER

Canada's Jubilee Celebration was noted by a Jubilee Edition of the Hamilton, Ontario, *Herald* which included two good full pages on the Hamilton Board of Health. The text was supplemented by photographs of activities and the staff, and six diagrams of readable size.

OFFICE

Identification numbers on posters, pamphlets, and other materials would facilitate correspondence, etc. The National Dairy Council will confer a favor by the adoption of a numbering system for its posters and placards.

A new letter-producing machine writes and individually addresses 3,000 letters an hour. *A list of current letter-producing processes will be supplied upon request.*

Special instructions added to mail should appear above the address and not in the lower left corner. "Special Delivery," "First Class Mail," etc., whether written or stamped should appear near the upper edge of the envelope. In case of a specially large envelope or a package it may be well to repeat the words on the back of the envelope or package.

"Attention of . . ." "Personal," etc., work most successfully when placed immediately above the name of the addressee. Many a letter marked "Personal," in lower left corner is opened by clerk or secretary before the warning is noticed.

PRESS MATERIAL

Milk the Indispensable Food for Children—A series of 14 press releases based upon a report of the same title issued by the Children's Bureau. *Free.*

"Proving Paternity"—A 175-word argument for birth registration based on the Gladstone libel trial and English birth records—in *Weekly Bulletin*, New Mexico Bureau of Health. Feb. 8, 1927.

RADIO

A new series of radio talks is being broadcast by the U. S. Public Health Service. The series is based on articles in *Children*. There is a commendable absence of technical terms. *Free.*

The "Ask Me Another About Health" idea might be worked by radio in several forms. One prominent citizen might put the questions, and another prominent or popular personage might be willing to attempt to answer the questions. Possibly a week later the questions could be broadcast again, with some one to indicate whether or not the governor or other prominent person gave the correct answers. Or, the health agency or a newspaper might offer prizes for the best sets of answers.

WORDS

"Non-immune population," "fulminant hemorrhagic variety," "almost extirpated."—Radio talk on smallpox.

They don't hesitate to use "propaganda" in England. The headings of five articles in *National Health*, London, include the word "propaganda."

LAW AND LEGISLATION

JAMES A. TOBEY, LL.B., DR.P.H.

Modern **Health Officials**—The trend of the times is to require health officials to be doctors of public health, according to Dr. Carl E. McCombs, writing in the *American City* for September, 1927. Dr. McCombs's article, on The Health Officer, His Duties and Salary, is an excerpt from his recently published book, *City Health Administration*, comprising its fifth chapter. "The demand for health officers so trained is growing rapidly," declares this writer, "and the evidence of it is to be found in the enactment of state laws and municipal charters and ordinances which specify that the health officer shall be a doctor of public health or shall have qualifications of experience and training which may be accepted as the equivalent of such degree." Dr. McCombs does not give any examples of such legislation, which, while theoretically sound, is not actually abundant. He predicts that, "in the near future professionally trained persons only will be chosen as city health officers." Let us hope so.

A section of this same article deals with the health officer and law enforcement. Here Dr. McCombs, after calling attention to the broad discretion usually exercised by health officers in legal matters, suggests that there may be occasions when strict enforcement of the law is impractical if not impossible. He says that there are still in effect many laws which are inconsistent with our present knowledge of sanitary science, and that there are others which, though of clearly proven necessity, can only be enforced adequately by the development of a spirit of obedience to health laws on the part of the citizens. He recommends that when the health officer must resort to strict law enforcement, there should be no hesitation or delay, as the effectiveness of the action will depend largely upon the promptness with which it is taken.

While there is much truth in all of this dicta, health officers should always keep in mind one essential point when considering the promotion of new legislation. Any proposed law must be necessary, practical, and enforceable. Once it has become a law, it should be not only enforceable, but enforced. If it is not intended to be enforced, then it should be forgotten before it ever becomes a law, not afterward. Laws are

not merely decorations, nor are the instruments of education; they are the commands of the sovereign power and as such they should be respected and followed in this system of government of ours, which is one of laws and not of men. That applies with particular force to health legislation.

Regulations for Milk Imports—Pursuant to the authority of the Federal Milk Import Act passed by the last Congress, regulations for the enforcement of this law have been promulgated by the U. S. Department of Agriculture. These regulations define various milk products, such as milk, cream, condensed milk, etc.; outline methods for physical examination of cows, the tuberculin test, sanitary inspection of dairies and plants; regulate pasteurization equipment and methods; state that bacterial counts shall be by the standard plate method of the American Public Health Association; regulate permits of various classes; and outline methods for securing such permits. There are in all 22 regulations. Copies may be obtained from the U. S. Food, Drug, and Insecticide Administration, Washington, D. C.

A Legal Standard for Ice Cream—Recommendations upon which legal standards for ice cream can be based are contained in a pamphlet recently sent out from the Agricultural Experiment Station of the Michigan State College. This bulletin (No. 158) is by F. W. Fabian, who has attempted to answer a question of interest to health officers, "How many bacteria should good ice cream contain?" He concludes that, "It is reasonable to expect a commercial ice cream plant to produce ice cream with a bacterial count (colonies) of 100,000 or less per gram." He also states that pasteurization of the ice cream mix is the best known safeguard against the spreading of disease by ice cream and should be required by law. "Because of the nature of the product," he writes, "150° F. for 30 minutes seems to be the best temperature and time for pasteurization." It is likewise recommended that ice cream plants should be inspected regularly by a sanitary inspector the same as are city milk plants.

A court in Wisconsin has recently decided that eating ice cream is not outside the scope of employment of a person who was working in an isolation hospital. Vilter Mfg. Co. v. Jahncke, 212 N. W. 641. In this case, an erecting engineer ate some ice cream given him by the janitor of the hospital and nine days later came down with smallpox. Since there had been smallpox patients in this hospital, the court sustained a finding that the disease was contracted there, and upheld an award to his widow.

Alum in Baking Powder—For seven years or more, there has apparently been a merry warfare between rival baking powder companies as to whether alum is objectionable in baking powder. In 1920 the Federal Trade Commission issued a formal complaint against the Royal Baking Powder Company, charging unfair methods of competition. This company had been advertising that its products contained no alum and that those which did were terrible, or words to that disastrous effect. Three years later, the Federal Trade Commission, with that tremendous speed characteristic of government bureaucracy, began hearings, and two years later filed a report, after the examiner had endured the testimony of only 158 so-called experts. An order of dismissal was issued by the Commission on March 23, 1926, and then on July 7, 1926, the case was surprisingly reopened.

As an aftermath of all this furor, the literature has been enriched (?) by a couple of booklets on alum in baking powder. One is issued by the Royal Baking Powder Company, and its 86 pages are devoted to proving most conclusively that the whole proceedings show that the slogan, "No alum—no bitter taste," used by them is absolutely justified. The other is published by the Calumet Baking Powder Company; it is somewhat more profuse, having 172 pages, all proving most positively that baking powders do not contain alum anyway and that their regally named rival has been defamatory.

The Duties of the Doctors—Every physician has certain civic responsibilities imposed upon him by law, particularly public health law. The newly licensed medical man usually has little if any conception of these requirements and often proceeds to get into trouble. Now, while doctors have duties, health departments also have them, and one of the most important is to be helpful to physicians. This fact, often inadequately realized, has been translated into action in a number of states. In New York, for instance, there has recently been issued by the State Department of Health a useful pamphlet entitled, "Information for Physicians," which has been compiled to furnish

doctors (of medicine) information as to their duties and responsibilities under the Public Health Law and the Sanitary Code, and, what is equally important, to explain how the department can coöperate with them. It is a sign of the times when service is stressed along with regulation.

Standard **Safety Codes**—Twenty standard safety codes are now available, according to a list given in the *Monthly Labor Review* of the U. S. Bureau of Labor Statistics for September, 1927 (page 238). Among the subjects covered are: abrasives, aeronautics, dust explosives, foundries, gas, heads and eyes, ladders, laundry machinery, lighting, logging and sawmill machinery, paper and pulp mills, power presses, power-transmission apparatus, rock dusting of coal mines, rubber mills, woodworking plants. This same issue contains a bibliography on state legislation and safety regulation.

A Model **Municipal Board of Health**—The Board of Health of the City of New York ought to consist of the Health Commissioner and several persons appointed by the Mayor from among those who have been prominently identified with the public health and welfare activities of the city. The members of the board should be persons of recognized standing and experience and should include a physician, a sanitary engineer, and an attorney. The term of office should be so arranged that only one would go out of office in any one year. The attendance at board meetings should not be perfunctory, nor should it be delegated to any one else except those who are, by law, members of the board. Each member should be paid not more than $1,000 a year as honorarium for his services.

These suggestions, as sensible and sound as any which have been put forward, come from the Public Health Relations Committee of the New York Academy of Medicine, which recommends that a bill to these ends be introduced in the Municipal Assembly. Theoretically, this is a model plan, though there are those who assert that it is somewhat difficult to conceive of a mayor of New York appointing "persons of recognized standing," to a paid board. It is rumored that such events transpire in the shadow of Tammany Hall, where "standing" is said to mean the political, not civic value of an individual.

The Veterans' Bureau Medical Service—Effective September 12, 1927, a reorganization of the medical service of the U. S. Veterans' Bureau has been brought about, in accordance with General Orders No. 246-M of the bureau. This order establishes the Medical Service under a Medical Director, responsible to the Director of the Bureau. This service has four divisions, as follows:

Regional Office
General Medical
Tuberculosis
Neuropsychiatric

There are six subdivisions: Insular and Foreign, Dental, Prosthetics, Medical Research, Occupational and Physiotherapy, and Business Management. In addition, there are four sections: Nursing, Dietetics, Social Work, and Library. The subdivisions and sections are independent and responsible to the Medical Director through the Executive Officer of the Medical Service. The present Medical Director is Dr. B. W. Black.

The Director of the Bureau, General Frank T. Hines, is quoted in the *New York Sun* of September 21, 1927, as intending to propose a bill in the next Congress to do away with the $50 a month payment now made by law to some 30,000 veterans who are arrested cases of tuberculosis.

Miscellaneous Items—Putting milk intended for human consumption into a bottle containing a mouse is not good form in New York, according to a recent court decision. Ritchie v. Sheffield Farms Co., 222 N. Y. S. 724, 129 Misc. Rep. 765.

A court in Scotland has decided that leaving ditches in a stagnant condition so that mosquitoes breed therein, is a nuisance under the public health act, and the landowner is responsible. According to a correspondent of the *Journal of the American Medical Association* for September 3, 1927, this is the first time such a decision has been made. It may be the first such holding in Great Britain, but not in the United States, where this point has been decided before.

Dr. Henry G. Knight has been appointed chief of the U. S. Bureau of Chemistry and Soils.

A reprint on the Constitutional, Statutory, and Administrative Aspects of Vital Statistics is now available and may be obtained from Dr. W. T. Fales, State Health Department, Mont-

gomery, Ala.; E. W. Kopf, 1 Madison Avenue, New York, N. Y.; or the Associate Editor.

CONFERENCES

Nov. 1–4, Texas Association of Sanitarians, Houston, Texas.

Nov. 4, New York State Association of Public Health Laboratories, Albany, N. Y.

Nov. 7–9, American Water Works Association (North Carolina Section), Durham, N. C.

Nov. 10, National Committee for Mental Hygiene, New York, N. Y.

Nov. 10–11, National Municipal League, New York, N. Y.

Nov. 14–17, Southern Medical Association, Memphis, Tenn.

Nov. 14–18, American Bottlers of Carbonated Beverages, New Orleans, La.

Nov. 15–17, New York State Conference on Social Work, Troy, N. Y.

Nov. 21–23, West Virginia Public Health Council, Morgantown, W. Va.

Nov. 28–Dec. 2, Radiological Society of North America, New Orleans, La.

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